

DURBAN UNIVERSITY OF TECHNOLOGY

**OMNICHANNEL SHOPPER BEHAVIOUR IN THE EMERGING SOUTH AFRICAN FOURTH
INDUSTRIAL REVOLUTION ENVIRONMENT**

TESSA REDDY

AUGUST 2025



**OMNICHANNEL SHOPPER BEHAVIOUR IN THE EMERGING SOUTH AFRICAN
FOURTH INDUSTRIAL REVOLUTION ENVIRONMENT**

Submitted in fulfilment of the requirements of the
degree of **Doctor of Philosophy in** Management Sciences

Specialising in

Marketing

in the

Faculty of Management Sciences

at the Durban University of Technology

TESSA REDDY

20923610

AUGUST 2025

APPROVED FOR FINAL SUBMISSION

Supervisor (Affiliation): DUT (signature)

Date: 14 August 2025

Dr Mandusha Maharaj

Co-Supervisor(Affiliation): DUT (signature)_____Date: 14 August 2025

Prof Surendra Thakur

ABSTRACT

The Fourth Industrial Revolution (4IR) is transforming global retail through emerging technologies such as artificial intelligence, mobile applications, and social media platforms. In South Africa, where digital adoption is rising amid unique socio-economic challenges, the omnichannel retail model has gained relevance. Yet, limited empirical research examines how South African consumers navigate omnichannel environments, particularly across different product types.

This study investigates omnichannel shopper behaviour in South Africa within the 4IR context, comparing decision-making for high-involvement (smartphones) and low-involvement (groceries) products. Using a quantitative, cross-sectional design, data were collected from 428 purposively sampled omni-shoppers within socio-economic measures (SEMs) 6–10. A single questionnaire was administered to all respondents, with separate sections for each product category, ensuring equal sample sizes ($n = 428$). Structural Equation Modelling (SEM) tested a conceptual framework integrating behavioural theories and digital enablers.

Findings show that, for high-involvement purchases, extensive information search and perceived risk significantly influenced purchase behaviour, with AI tools and social media exerting strong effects during the pre-purchase stage. Low-involvement decisions were shaped mainly by convenience and affordability, with AI and social media playing a supportive role. Both models confirm and extend the Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB), and Consumer Decision-Making Model (CDM) within an emerging market. Recommendations include leveraging AI and social media for engagement, integrating online–offline channels for convenience, reducing perceived risks, and adopting mobile-first strategies to expand reach.

This research delivers a validated omnichannel shopper model tailored to South Africa's 4IR retail environment, advancing theoretical understanding and providing actionable insights for retailers and policymakers seeking inclusive, technology-driven strategies.

Keywords: Omnichannel retailing, consumer behaviour, Fourth Industrial Revolution, artificial intelligence, social media, structural equation modelling, South Africa

DECLARATION

I, Tessa Reddy, declare that this thesis is original and all the contents are appropriately acknowledged and explicitly referenced. A bibliography is appended to the thesis. Furthermore, it represents my opinions, not necessarily those of the Durban University of Technology. I also certify that the thesis has yet to be submitted in any of its parts or entirety for a degree in Doctor of Philosophy in Management Sciences specialising in Marketing at any other institution of higher learning, locally or internationally. I hereby permit my work to be available for photocopying and/or reprinting, for inter-library loan and for the title and abstract of this thesis to be made available to other educational institutions and students.

14 August 2025

Tessa Reddy (20923610)

Date

ACKNOWLEDGMENTS

I want to convey my sincere appreciation to the following organisations and individuals:

- Firstly, I thank Almighty God for making all this possible.
- The National Research Foundation (NRF) for their financial support through the Thuthuka Funding.
- The BANK SETA for their financial support through funding, which made my data collection possible.
- Durban University of Technology (DUT) seed funding assisted in my statistical consultations and editing.
- Dr M. Maharaj, my supervisor, for her invaluable patience and feedback.
- Prof S. Thakur, my co-supervisor, for his invaluable feedback and discussions.
- To my statistician, Dr G. Hendry, thank you for all your hard work on my project; I appreciate it.
- To Prof T. Dobbstein, thank you for your input and for collaborating on a paper.
- To my language editor, Ms S Bisetty, for a fantastic job where I learned a lot.
- To the Executive Dean of the Faculty of Management Sciences, Prof F. Netswera, thank you for all the research support, which has helped create a community within our faculty to assist with all research-related queries and support one another.
- To Prof D. Hlengwa, thank you for all the support and ensuring we attended all the virtual and face-to-face workshops to hone our research skills.
- To my Head of Department (HoD), Prof J. P. Govender, for the support and encouragement
- Thank you, my colleagues at the Department of Marketing and Retail Management, for your unwavering support and encouragement.
- To my colleagues at the Faculty of Management Sciences for assisting with all the administrative tasks, from getting registered to submitting the final thesis for examination.
- To my dear friend and colleague, Dr S. C. Onwubu, thank you for assisting me with my statistical analysis and for spending hours ensuring I understood everything I did.
- To my partner, Mr S. Ramparak, for his support, for listening to me speak about my research and for being my transporter to wherever I needed to be.
- My mum and dad for their support, prayers and finances throughout my academic journey.
- Lastly, thank you to all my friends and extended family.

DEFINITIONS

Artificial Intelligence	AI machines are programmed to simulate human intelligence by being designed to think and learn like humans.
Augmented Reality	Technology that overlays digital information on the real world through devices like smartphones or AR glasses.
Cloud Computing	Delivery of computing services like storage, processing and software over the internet ("the cloud").
E-commerce	E-commerce refers to buying and selling goods and services over the internet.
Facebook	A social media platform that allows users to connect with friends, family and others, share photos and videos and join communities.
Fourth Industrial Revolution	Modern, innovative technology drives the ongoing automation of traditional manufacturing and industrial practices.
Generation X	People born between 1965 and 1980 are known for their adaptability and digital proficiency.
Generation Y (Millennials)	People born between 1981 and 1996 are familiar with digital and internet technologies due to their upbringing.
Generation Z	People born in 1997 are often called digital natives due to their lifelong exposure to technology and social media.
Groceries (food items)	Consumers purchase everyday food products for household use.
Instagram	It is a photo and video-sharing social media platform where users can post content, follow others and use various filters and effects.
Internet of Things (IoT)	It is a network of physical devices connected to the internet that enables them to collect and exchange data.
LinkedIn	A professional networking platform where users can create profiles, connect with colleagues and search for job opportunities.
M-commerce	Mobile commerce refers to buying and selling goods and services through mobile devices.
Millennials	Another term for Generation Y - people born between 1981 and 1996.
Mobile Apps	Mobile applications (apps) are software applications designed to run on mobile devices such as smartphones and tablets.
Multichannel Retailing	A retail strategy where customers can shop through multiple channels (e.g., online, in-store) but with separate management for each channel.
Omnichannel Retailing	Omnichannel retailing refers to a seamless approach that the consumer experiences through all available shopping channels, integrating them into a cohesive whole.
Omnishopper	Omnishopper is a consumer who uses multiple online and offline channels to purchase and interact with brands.
S-commerce	Social commerce refers to buying and selling goods and services directly through social media platforms.
Shopper	A shopper is an individual who purchases goods or services.
Showrooming	Showrooming is examining merchandise in a physical store before buying it online at a lower price.
Single-Channel Retailing	A retail strategy that focuses on reaching customers through one distribution channel, like a physical store or an online store.
Smartphone	A smartphone is a mobile device with advanced features like internet connectivity, apps and high-quality cameras.
Snapchat	A multimedia messaging app where users can send photos and videos that disappear after being viewed.
Social media	Platforms that allow users to create, share and engage with content and connect with others (e.g., Facebook, Instagram, Twitter).
Twitter	Twitter, now called X, is a social media platform where users post and interact with messages known as "tweets" in real-time.
User	A user is a term used to refer to an individual who uses a product, service, or system.

Virtual Reality	A simulated experience that can be similar to or completely different from the real world, often using VR headsets.
Webrooming	Webrooming is researching products online before buying them in a physical store.

ACRONYMS

AI	Artificial Intelligence
AR	Augmented reality
AVE	Average Variance Extracted
BTS	Bartlett's Test of Sphericity
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
EFA	Exploratory Factor Analysis
GFI	Goodness of Fit
IFI	Incremental Fit Index
IQR	Interquartile Range
KMO	Kaiser-Meyer-Olkin
ML	Machine learning
MM	Measurement model
PCA	Principal Component Analysis
RFID	Radio Frequency Identification Device
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Modelling
TLI	Tucker Lewis Index
VR	Virtual reality

TABLE OF CONTENT

ABSTRACT	I
DECLARATION.....	II
ACKNOWLEDGMENTS.....	III
DEFINITIONS.....	IV
ACRONYMS	VI
LIST OF FIGURES	II
LIST OF TABLES	III
CHAPTER ONE: INTRODUCTION AND OVERVIEW.....	1
1.1 INTRODUCTION	1
1.2 BACKGROUND AND CONTEXT OF THE STUDY	2
1.2.1 Product levels.....	3
1.2.2 Product categories	3
1.3 RESEARCH PROBLEM	5
1.4 AIM OF THE STUDY	7
1.5 RESEARCH OBJECTIVES	7
1.6 HYPOTHESIS	7
1.7 OVERVIEW OF THE RESEARCH METHODOLOGY	8
1.7.1 Research method	9
1.7.2 Target population.....	9
1.7.3 Sample size	9
1.7.4 Sampling method.....	9
1.7.5 Measuring instrument	10
1.7.6 Data collection and analysis.....	10
1.7.7 Pre-Testing	11
1.7.8 Inclusion and Exclusion	12
1.7.9 Delimitations of the Study	12
1.7.10 Limitations of the study	12
1.7.11 Validity	13
1.7.12 Reliability	13
1.7.13 Confidentiality and anonymity.....	14
1.7.14 Ethical considerations	14
1.7.15 Conceptual Framework.....	15

1.8	Significance and Contribution of the Study	17
1.8.1	Theoretical contribution	17
1.8.2	Practical Contribution	18
1.9	OUTLINE OF THE CHAPTERS	20
1.10	SUMMARY	22
CHAPTER TWO		24
2.1	INTRODUCTION	24
2.2	OVERVIEW OF RETAILING	25
2.3	RETAIL IN SOUTH AFRICA	27
2.3.1	Historical Perspective on South African Retail	29
2.4	SINGLE-CHANNEL RETAILING	30
2.4.1	Physical channel (Brick and Mortar (B&M))	31
2.4.2	Digital Commerce	32
2.5	TRANSITION OF MULTI-CHANNEL RETAILING	42
2.5.1	Definition of multi-channel retailing	43
2.5.2	Factors Driving Multi-Channel Adoption	44
2.5.3	The transition from multi-channel to omnichannel	45
2.6	OMNICHANNEL RETAILING	46
2.7	DEFINITION OF OMNICHANNEL RETAILING	48
2.8	RATIONALE FOR THE EVOLUTION OF OMNICHANNEL RETAILING	51
2.9	SIGNIFICANCE OF THE TRANSITION	51
2.9.1	Technologies Facilitating Omnichannel Integration—Further discussed in the next chapter	52
2.9.2	COVID-19 and technology acceleration	52
2.10	SUMMARY	57
CHAPTER THREE: LITERATURE REVIEW		59
3.1	INTRODUCTION	59
3.2	HISTORICAL OVERVIEW OF INDUSTRIAL REVOLUTIONS	59
3.3	OVERVIEW OF THE FOURTH INDUSTRIAL REVOLUTION (4IR)	61
3.4	FOURTH INDUSTRIAL REVOLUTION WITHIN A GLOBAL CONTEXT	62
3.5	THE FOURTH INDUSTRIAL REVOLUTION IN SOUTH AFRICA	62
3.6	THE FOURTH INDUSTRIAL REVOLUTION WITHIN THE RETAIL LANDSCAPE—AN OVERVIEW	63
3.6.1	Transition to the digital era	63
3.6.2	Key drivers of change in retail during the 4IR	64

3.6.3	The role of technology in shaping omnichannel experiences.....	64
3.7	4IR IN OMNICHANNEL RETAIL.....	66
3.7.1	Artificial Intelligence (AI).....	66
3.7.2	Machine Learning (ML)	69
3.7.3	Augmented reality (AR).....	71
3.7.4	Virtual Reality (VR)	72
3.7.5	Internet of Things.....	75
3.7.6	Advanced Analytics	78
3.7.7	Applied robotics.....	79
3.7.8	Cloud computing.....	81
3.7.9	Cybersecurity	83
3.7.10	Digital payments	84
3.7.11	Deliveries	86
3.8	CHALLENGES FOR RETAILERS IN SOUTH AFRICA.....	88
3.8.1	Infrastructure limitations	88
3.8.2	Venture capital.....	89
3.8.3	Digital literacy	89
3.8.4	Skill gaps and training needs.....	89
3.8.5	Crime.....	90
3.9	Addressing challenges in adopting 4IR technologies.....	91
3.9.1	Personalisation and customer engagement.....	92
3.9.2	Data-driven decision-making	92
3.10	SUMMARY.....	92
CHAPTER FOUR: LITERATURE REVIEW		94
4.1	INTRODUCTION	94
4.2	CONSUMER BEHAVIOUR	94
4.3	SOUTH AFRICAN SHOPPER BEHAVIOUR	96
4.3.1	Age	97
4.3.2	Gender	98
4.3.3	SEM	98
4.3.4	Devices used	99
4.4	OMNICHANNEL SHOPPING.....	99
4.4.1	Consumer Shopping Behaviours and Preferences	99
4.4.2	Adoption of Online Grocery Shopping in South Africa	100
4.4.3	Consumer Behaviour and Technology Integration.....	100
4.4.4	Perceived Value and Habit Formation.....	101
4.5	THEORIES	101
4.5.1	Technology Acceptance Model (TAM)	103
4.5.2	Unified Theory of Acceptance and Use of Technology (UTAUT)	104
4.5.3	Situated Cognition Theory	105
4.5.4	Theory of Planned Behaviour (TPB)	106
4.5.5	Theory of Reasoned Action.....	106

4.5.6	Self-Determination Theory	108
4.5.7	Consumer Decision-Making Process Model.....	108
4.6	JUSTIFICATION OF CHOICE	118
4.7	HYPOTHESES DEVELOPMENT AND THEORETICAL LINKAGES	121
4.7.1	High-Involvement Product: Smartphones	121
4.7.2	Low-Involvement Product: Groceries	123
4.7.3	Construct labels	124
4.8	SUMMARY	125
CHAPTER FIVE: RESEARCH METHODOLOGY.....		126
5.1	INTRODUCTION	126
5.2	RESEARCH PHILOSOPHY	126
5.3	THE RESEARCH PROCESS.....	128
5.3.1	Step One: Select the research topic	129
5.3.2	Step Two: Formulate a research problem	130
5.3.3	Step Three: Conduct a literature review	131
5.3.4	Step Four: Formulating objectives and aims	132
5.3.5	Step Five: Determine the study type	133
5.3.6	Step Six: Determine the research design	136
5.3.7	Step Seven: Determine the sample plan and size	139
5.3.8	Step Eight: Identify information types and sources	148
5.3.9	Step Nine: Design data collection forms	150
5.3.10	Step Ten: Eliminate bugs by piloting.	155
5.3.11	Step Eleven: Collect data	157
5.3.12	Step Twelve: Prepare and process primary data.....	158
5.3.13	Step Thirteen: Analyse the primary data	160
5.3.14	Step Fourteen: Interpret the results and develop a conceptual model	169
5.3.15	Step Fifteen: Prepare and present the final research report	169
5.3.16	Step Sixteen: Communicate the insights—output.....	169
5.4	ELIMINATIONS OF BIAS	170
5.5	ETHICAL CONSIDERATIONS.....	170
5.5.1	Ensuring that permission is obtained	171
5.5.2	Ensuring participants have given informed consent	171
5.5.3	Ensuring no harm comes to participants	171
5.5.4	Ensuring confidentiality and anonymity	171
5.6	SUMMARY.....	172
CHAPTER SIX: FINDINGS, ANALYSIS AND INTERPRETATION.....		173
6.1	INTRODUCTION	173
6.2	RESPONSE RATE AND REPRESENTATIVENESS	173

6.3	DESCRIPTIVE AND INFERENTIAL STATISTICS	173
6.3.1	Section A: Demographic Data.....	174
6.3.2	Devices used.....	175
6.4	Descriptive and Inferential statistics.....	177
6.4.1	Artificial Intelligence In-store	177
6.4.2	Artificial Intelligence Online	183
 CHAPTER SEVEN: FINDINGS, ANALYSIS AND INTERPRETATION		189
7.1	INTRODUCTION.....	189
7.2	DESCRIPTIVE AND INFERENTIAL STATISTICS.....	189
7.3	SHOPPING BEHAVIOUR - SOCIAL MEDIA	190
7.4	SOCIAL MEDIA ENGAGEMENT.....	195
7.5	RISK.....	201
7.6	RELIABILITY STATISTICS	208
7.7	FACTOR ANALYSIS.....	209
7.8	SUMMARY.....	211
 CHAPTER EIGHT: FINDINGS, ANALYSIS AND INTERPRETATION		212
8.1	INTRODUCTION	212
8.2	ANALYSIS BASED ON EMPIRICAL FINDINGS — SHOPPER BEHAVIOUR OMNICHANNEL	212
8.2.1	Pre-purchase	213
8.2.2	Purchase	227
8.2.3	post-purchase	235
8.3	THEORETICAL FINDINGS AND HYPOTHESIS TESTING	242
8.4	RELIABILITY	252
8.4.1	Cronbach Alpha.....	252
8.4.2	Fitness of the Model	253
8.5	VALIDITY	254
8.6	STRUCTURAL EQUATION MODEL (HYPOTHESES TESTING)	256
8.7	SUMMARY	266
 CHAPTER NINE: DISCUSSION OF RESULTS.....		268
9.1	INTRODUCTION	268
9.2	DEMOGRAPHICS	268
9.3	DISCUSSION AS PER OBJECTIVES	269
9.3.1	OBJECTIVE 1: To describe the omnichannel shopper behaviour in the emerging Fourth Industrial Revolution in South Africa.....	269
9.3.2	OBJECTIVE 2: To determine the 4IR emerging trends in omnichannel retailing.....	272
9.3.3	OBJECTIVE 3: To analyse shopper behaviour on social media platforms	279
9.3.4	OBJECTIVE 4: To analyse omnichannel shopper behaviour on high- and low-involvement products...	283
9.3.4.1.1	AWARENESS	284
9.3.4.1.2	SEARCH FOR INFORMATION	288
9.3.4.1.3	EVALUATION OF INFORMATION	290
9.3.4.2.1	Collection and Delivery	303
9.3.4.2.2	Payment methods	309
9.3.4.3.1	Satisfaction	314
9.3.4.3.2	Dissatisfaction	319

9.3.4.4 RISK.....	323
9.3.4.4.1 Financial Risk	323
9.3.4.4.2 Time-loss risk	327
9.3.4.4.3 Transaction risk	330
9.3.4.4.4 Logistics risk	333
9.4 SUMMARY	336
CHAPTER TEN: CONCLUSIONS AND RECOMMENDATIONS	339
10.1 INTRODUCTION	339
10.2 SUMMARY OF THE STUDY	339
10.3 MAIN FINDINGS REGARDING THE RESEARCH PROBLEM	341
10.4 CONCLUSION EMANATING FROM THE STUDY SAMPLE	342
10.5 CONCLUSIONS ARISING FROM THE RESEARCH OBJECTIVES	342
10.5.1 Objective One: To describe the omnichannel shopper behaviour in the emerging Fourth Industrial Revolution in South Africa	343
10.5.2 Objective Two: To determine the 4IR emerging trends in omnichannel retailing	343
10.5.3 Objective Three: To analyse shopper behaviour on social media platforms	344
10.5.4 Objective Four: To analyse omnichannel shopper behaviour on high- and low-involvement products	344
10.5.5 Objective Five: To propose an omnichannel shopper behaviour model for South Africans in the emerging Fourth Industrial Revolution	344
10.6 RECOMMENDATIONS	348
10.6.1 ENHANCING IN-STORE AI	349
10.6.2 OPTIMISING ONLINE ARTIFICIAL INTELLIGENCE TOOLS	349
10.6.3 LEVERAGING SOCIAL MEDIA IN RETAIL STRATEGY	349
10.6.4 ENHANCING CONSUMER ENGAGEMENT ON SOCIAL MEDIA	350
10.6.5 MITIGATING PERCEIVED FINANCIAL RISK	351
10.6.6 REDUCING TIME-RELATED RISK	351
10.6.7 ADDRESSING TRANSACTIONAL RISK	352
10.6.8 OVERCOMING LOGISTICS-RELATED CHALLENGES	353
10.6.9 IMPROVING THE PRE-PURCHASE EXPERIENCE	353
10.6.10 STREAMLINING THE PURCHASE PROCESS	354
10.6.11 ENHANCING THE POST-PURCHASE EXPERIENCE	354
10.6.12 INTEGRATED STRATEGIC RECOMMENDATIONS FOR OMNICHANNEL RETAILING	355
10.7 LIMITATIONS OF THE STUDY	357
10.8 Contribution to Knowledge	358
10.9 RECOMMENDATIONS FOR FURTHER OR FUTURE RESEARCH	359
10.10 CONCLUSION OF THE STUDY	359
LIST OF REFERENCES	360
APPENDIX A: ETHICAL APPROVAL	418

APPENDIX B: LETTER OF INFORMATION.....	419
APPENDIX C: LETTER OF INFORMED CONSENT	422
APPENDIX D: CORE STUDY CONSTRUCTS AND THEORETICAL FOUNDATIONS	423
APPENDIX E: DERIVATION TABLE	425
APPENDIX F: ETHICS CERTIFICATION	432
APPENDIX G: RESEARCH INSTRUMENT (QUESTIONNAIRE)	433
APPENDIX H: LETTER FROM THE STATISTICIAN	449
APPENDIX I: LETTER FROM THE EDITOR.....	450
APPENDIX J: TURNITIN REPORT.....	451

LIST OF FIGURES

Figure 2.1 South African Retailer Classification.....	28
Figure 2.2 Linear Progression of the shift from single channel to multi-channel and omnichannel retailing	30
Figure 2.3 E-Retailers in South Africa	35
Figure 2.4 Mobile Commerce	39
Figure 2.5 Mobile Shopping Apps.....	39
 Figure 3.1 Stages of the Industrial Revolution	61
Figure 3.2 Customer-facing applications	80
 Figure 4.1 The five-stage consumer decision-making process	108
 Figure 5.1 The stages in the research process	129
Figure 5.2 The sampling design process	139
Figure 5.3 Sampling Methods	141
Figure 5.4 Questionnaire Design Process	151
Figure 5.5 Conceptual Framework	169
 Figure 6.1 Online shopping and devices used.	175
 Figure 7.1 Comparison between social media platforms	199
 Figure 8.1a SEM - Smartphone.....	259
Figure 8.1b SEM - Groceries.....	260
 Figure 8.2a Finalised SEM - Smartphone.....	261
Figure 8.2b Finalised SEM - Groceries	260
 Figure 10.1 Omnichannel high and low involvement path to purchase	347

LIST OF TABLES

Table 2.1 Classification of Retailer Institutions	27
Table 2.2 Historical Perspective on South African Retail	29
Table 2.3 Social media platforms that offer online shopping.	40
Table 2.4 Definition of multi-channel.....	44
Table 2.5 Factors Driving Multi-Channel Adoption	45
Table 2.6 Definition of Omnichannel Retailing	48
Table 2.7 Factors that led to Omnichannel retailing.	51
Table 3.1 Industrial Revolutions	60
Table 3.2 Machine Learning in the Retail Sector	69
Table 5.1 Definitions of Research in Marketing	128
Table 5.2 Sample plan for the study	145
Table 5.3 Cronbach Alpha	165
Table 6. 1 Socio-demographic variables	174
Table 6.2 Artificial Intelligence in-store	177
Table 6.3 Correlation Matrix – in-store Artificial intelligence	178
Table 6.4 Component Matrix – Artificial Intelligence In-store	179
Table 6.5 KMO and Bartlett's Test – Artificial Intelligence In-store	180
Table 6.6 Total Variance – Artificial Intelligence In-store	181
Table 6.7 Item-Total Statistics – Artificial Intelligence In-store	181
Table 6.8 Artificial Intelligence Online	183
Table 6.9 Correlation Matrix – Artificial Intelligence Online	185
Table 6.10 Component Matrix – Artificial Intelligence Online	186
Table 6.11 KMO and Bartlett's Test – Artificial Intelligence Online	186
Table 6.12 Total Variance – Artificial Intelligence Online	187
Table 6.13 Item-Total Statistics – Artificial Intelligence Online	187
Table 7.1 Social media usage for purchases.	190
Table 7.2 Correlation Matrix – social media usage for pre-purchases	192
Table 7.3 KMO and Bartlett's Test – social media usage	192
Table 7.4 Component Matrix – Social Media Usage	193
Table 7.5 Total Variance Explained – Social Media Usage	193
Table 7.6 Item-Total Statistics – social media usage	194
Table 7.7 Social Media Engagement	195
Table 7.8 Correlation Matrix – Social Media Engagement	196
Table 7.9 KMO and Bartlett's Test	197
Table 7.10 Component Matrix	197
Table 7.11 Item-Total Statistics	198
Table 7.12 Correlations – social media usage and engagement	200
Table 7.13 Financial Risk	201
Table 7.14 Time-loss Risk	203
Table 7.15 Transaction Risk	205
Table 7.16 Logistics Risk	207

Table 7.17 Cronbach Alpha	208
Table 7.18 Factor Loadings Risk	210
Table 8. 1a Awareness (Browsing and Shopping - Smartphone)	213
Table 8. 1b Awareness (Browsing and Shopping – Groceries food items)	213
Table 8. 2a Search for information - Smartphone	217
Table 8. 2b Search for information – Groceries food items	217
Table 8. 3a Evaluation of information - Smartphone	221
Table 8. 3b Evaluation of information – Groceries food items	224
Table 8. 4a Collection and Delivery of the Smartphone	227
Table 8. 4b Collection and Delivery of the Groceries food items	227
Table 8. 5a Payment methods when purchasing a Smartphone	231
Table 8. 5b Payment methods when purchasing a Groceries food items	231
Table 8. 6a Satisfaction - Smartphone	235
Table 8. 6b Satisfaction – Groceries food items	235
Table 8. 7a Dissatisfaction - Smartphone	239
Table 8. 7b Dissatisfaction – Groceries food items	239
Table 8. 8a KMO and Barlett's Test - Smartphone	243
Table 8. 8b KMO and Barlett's Test – Groceries food items	243
Table 8. 9a Total Variance Explained - Smartphone	244
Table 8. 9b Total Variance Explained – Groceries food items	244
Table 8. 10a Rotated Component Matrix - Smartphone	247
Table 8. 10b Rotated Component Matrix – Groceries food items	247
Table 8. 11a Cronbach Alpha - Smartphone	252
Table 8. 11b Cronbach Alpha – Groceries food items	252
Table 8. 12a Model fitness indices for the MM - Smartphone	253
Table 8. 12b Model fitness indices for the MM – Groceries food items	253
Table 8. 13a Composite reliability, average variance extracted and maximum shared square values - Smartphone	255
Table 8. 13b Composite reliability, average variance extracted and maximum shared square values – Groceries food items	255
Table 8. 14a Path regression estimate of the proposed model - Smartphone	263
Table 8. 14b Path regression estimate of the proposed model – Groceries food items	263

CHAPTER ONE: INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION

The omnichannel model redefines shopper engagement by embracing many platforms, from offline to online and mobile. Unlike its predecessor, multi-channel retailing, which merely encompasses various channels, the omnichannel strategy seamlessly integrates every touchpoint, delivering a unified shopping experience. The emergence of the Fourth Industrial Revolution (4IR) has significantly transformed shopper behaviour by disrupting the retail environment and how shoppers engage with retailers. This transformation promises unparalleled connectivity and coherence, propelling retailers into a new era of shopper interaction and satisfaction. Thus, understanding omnichannel shopper behaviour in this evolving landscape is essential for retailers to adapt their strategies effectively and meet the needs of consumers in the 4IR environment.

The research gap stems from a limited understanding of consumer behaviour in omnichannel retailing, particularly in South Africa. Although consumer behaviour is a critical aspect of retailing literature, researchers must conduct more studies that connect consumer decision-making with behavioural theories in omnichannel retailing. Additionally, researchers need to focus more on the consumer perspective of omnichannel retailing. This gap offers a significant opportunity for further research to develop theories related to omnichannel retailing and address diverse consumer-related issues. Moreover, the emerging 4IR environment in South Africa underscores the urgency of such research.

Therefore, the study provides insight into omnichannel retail shopper behaviour within the emerging South African 4IR environment. This chapter presents the context and background of the study, outlines the research problem, details the aim, objectives and research questions, provides an overview of the research methodology used in the study and includes a brief chapter outline. The potential impact of this study on the retail industry is significant, as it could revolutionise how retailers understand and adapt to the changing South African retail landscape in the 4IR era.

1.2 BACKGROUND AND CONTEXT OF THE STUDY

Retail is a key contributor to South Africa's economy, accounting for approximately 15% of GDP, with e-commerce growing by 26% annually since 2017 (Pillay, 2019: 2). The sector is rapidly integrating Fourth Industrial Revolution (4IR) technologies, underpinned by high mobile connectivity, expanding digital payments, and the rising influence of social media on shopper journeys. Mobile cellular subscriptions reached 108.7 million in 2023, with 75 million smartphones in use and mobile data users increasing to 41 million (ICASA 2024: 33). 5G coverage nearly doubled between 2022 and 2023, enabling richer, data-intensive retail experiences (ICASA, 2024: 5).

AI readiness is advancing, with 98% of South African organisations having an AI strategy in place or progress, and strong deployment in analytics and cybersecurity, though skills gaps and data readiness remain challenges (Cisco 2024: 3). Social media plays a central role in product discovery, evaluation and purchase, with brands adapting content, influencer partnerships and social commerce to reach price-sensitive consumers (Ornico 2024: 5). However, barriers such as affordability, uneven digital literacy, and infrastructural constraints, most notably load shedding, continue to shape adoption patterns and inclusivity (GSMA 2023: 13; ICASA 2024: 4).

Despite these frictions, local innovations are accelerating omnichannel adoption. High smartphone penetration enables widespread showrooming/webrooming, while app-led delivery services such as Checkers Sixty60 set benchmarks for on-demand fulfilment in urban markets (Shoprite 2024a: 1; Shoprite 2024b: 3). Payment innovations, including the South African Reserve Bank's Digital Payments Roadmap and the rollout of PayShap, are fostering cash-to-digital migration, supporting frequent, low-value omnichannel transactions (SARB 2024: 54; AfricaNenda 2024: 28).

In this environment, the traditional single-channel retail model has become inefficient. Omnichannel retailing, integrating online, offline, mobile and social media touchpoints, has emerged as the dominant strategy, allowing seamless shopper engagement across the pre-purchase, purchase and post-purchase stages (Zaware et al., 2020: 1087).

While omnichannel retailing has been widely studied in developed markets (Smith and Sparks, 2022; Li et al., 2023), the South African literature remains limited and fragmented, with many

studies predating recent advances in mobile connectivity, AI integration, and social commerce. Consequently, there is little empirical evidence on how South African consumers engage across channels for different product types, how emerging 4IR technologies influence each stage of the shopper journey, and how socio-economic disparities shape adoption patterns. This creates a gap in both theoretical understanding and practical guidance for local retailers. The present study addresses this gap by analysing omnichannel shopper behaviour in the South African 4IR retail environment, comparing high-involvement (smartphones) and low-involvement (groceries) categories to generate actionable insights for both academia and industry.

1.2.1 Product levels

Products have three levels: the core product, the actual product and the augmented product (Bothma and Machado 2018: 12). The core product represents the fundamental benefit or service that the customer is buying, such as communication and connectivity when purchasing a smartphone. For example, a smartphone provides the core product benefits of communication and connectivity, which the customer primarily purchases. The product includes the tangible and intangible attributes that provide the core benefits, including design, brand name, features, quality and packaging. For instance, a smartphone's actual product comprises its brand (e.g., Apple), design, operating system and features like the camera. The augmented product encompasses additional services and benefits that come with the product, such as warranties, after-sales service, delivery, installation and customer support. In the case of a smartphone, these could include a warranty, customer service and free software updates (Strydom 2024: 147).

1.2.2 Product categories

Product categories group similar products together, usually based on common characteristics or intended use. Consumer products are goods bought for personal use and include convenience products (frequently purchased, low-cost items with minimal effort, like bread and soap), shopping products (items for which consumers compare quality, price and style across different brands before purchasing, like clothing and electronics), speciality products (unique items that consumers actively seek out and are willing to pay a premium for, like luxury cars and designer clothing) and unsought products (products that consumers do not usually think of buying or are unaware of, like life insurance and funeral services). Industrial products are goods purchased for business use and include materials and parts (raw materials and components used in production like lumber and steel), capital items (long-lasting goods that facilitate developing or managing the finished product like machinery and buildings) and supplies and services (short-term goods and services

used to support the business, like office supplies and maintenance services) (Kotler, Keller, Brady, Goodman and Hansen 2019: 453).

Manufacturers and marketers classify products based on their durability and tangibility. They categorise durable goods, such as appliances and cars, as tangible products that consumers use over a long period. Conversely, marketers classify non-durable goods like groceries and food as tangible products consumed quickly, requiring frequent purchases. Additionally, marketers identify services as intangible products, such as haircuts and legal advice, that are not stored and consumed at purchase. Specific classifications include consumer electronics like smartphones and laptops, clothing and accessories, automobiles including cars and trucks and sectors like food and beverages, healthcare products, furniture, cosmetics and personal care and home appliances (Product classifications 2024).

For this study, the researcher focuses on two product categories: 1) smartphones and 2) groceries. Smartphones are categorised as a high-involvement, tech-heavy product category, where consumers engage in extensive information processing and often rely on trusted sources, such as social media influencers, to help navigate technical specifications (Almahdi et al., 2022; Baghel, 2023). In contrast, groceries are typically regarded as a low-involvement product category, purchased frequently, carrying low financial and performance risk, and often decided upon through habitual behaviour with minimal information search (Schiffman and Kanuk 2010: 173).

This study's strategic selection of high-involvement (smartphones) and low-involvement (groceries) product categories allows for a comprehensive exploration of contrasting consumer decision-making processes within the omnichannel retailing context. Smartphones represent high-cost, aspirational purchases that demand extensive information search and evaluation due to their perceived risk and long-term commitment. In contrast, groceries are routine, low-cost purchases driven by convenience, habit and immediate needs. By examining these distinct categories, the study captures a spectrum of consumer engagement across product types, offering more profound insights into how omnichannel strategies influence rational, high-effort decisions and routine, low-effort behaviours. This contrast ensures that the findings are broad and generalisable, contributing to a richer understanding of consumer behaviour.

Additionally, these categories align with the impact of the Fourth Industrial Revolution (4IR) on retail. Smartphones are central to omnichannel engagement, enabling research, comparisons

and digital interactions, while groceries highlight the digital transformation of routine purchases through online platforms and delivery options. This combination also reflects South African market dynamics, where smartphones are status-driven, aspirational purchases influenced by social media, and groceries reflect price-sensitive, accessible choices. The dual focus addresses diverse consumer needs by taking into account academic and practical contributions, providing actionable insights for technology-driven and routine-focused retail strategies and enhancing the relevance of this research in the rapidly evolving omnichannel retail landscape.

1.3 RESEARCH PROBLEM

Despite the rapid evolution of omnichannel retailing and its significant impact on consumer behaviour in developed economies, it remains critical to understand how third-world consumers engage with and perceive it. Existing literature focuses on developed economies, leaving a substantial gap in knowledge about consumers' unique challenges and behaviours in less-developed regions. The limited application of robust theoretical frameworks and diverse methodological approaches in existing studies intensifies this gap.

South African retailers are grappling with a rapidly evolving retail landscape, driven by technological innovations and shifting consumer behaviours. With advancements like intelligent robots, self-service kiosks and 3D printing, the retail sector is experiencing significant disruption globally (World Economic Forum 2019: 2). The COVID-19 pandemic further accelerated digitisation, prompting shoppers to utilise multiple platforms for researching, comparing and purchasing goods and services (Syaglova and Snezana Mojsosvska 2019: 222). Consequently, retailers must adapt strategies to meet current and potential shoppers' diverse needs and preferences (Wingfield 2020: 2).

To thrive in this dynamic environment, retailers must align their strategies with their shoppers' needs and leverage data to build personalised shopping experiences (Jung-Hwan 2019: 220). The omnichannel model emerges as a solution, integrating various platforms, for instance, online and offline to create a seamless shopping journey (Levy and Weitz 2011: 48). Recognising the potential of digital platforms, retailers aim to capitalise on each channel to engage effectively with their target audience (Soqinase, Naidoo, Mphuti, Laureles and Murwa 2015: 9).

In addition, mobile devices play a pivotal role in omnichannel shopping, influencing purchasing decisions and bridging the gap between online and offline experiences (Fox and Valodia 2019:

2). On the other hand, concerns about data privacy and cybersecurity persist, urging retailers to gain deeper insights into shopper behaviour across different touchpoints responsibly (Fitch Solutions 2020: 37).

Despite the opportunities presented by 4IR technologies, businesses encounter challenges in adapting to rapid changes and leveraging big data effectively (Lee, Kao and Yang 2014: 5). Additionally, socio-economic factors such as a shortage of skilled workforce and infrastructural limitations in non-urban areas pose significant hurdles (Govender 2019: 2; Ungerer 2020: 1 and Knott-Criag, 2018). Amidst these challenges, retailers must rethink their omnichannel strategies to navigate the evolving retail landscape successfully.

Limited research on omnichannel shopper behaviour underscores the need for further investigation to address gaps in understanding consumers (Mishra, Singh and Koles 2020: 15). The authors note,

We could not find a single review paper linking consumer decision-making with behavioural theories. Consumer behaviour is at the core of retailing literature themes. Hence, future research is needed to develop theories related to omnichannel retailing research to understand and address diverse issues related to the consumer perspective in omnichannel retailing.

The assertion above is supported by Shi, Wang, Chen and Zhang (2020: 327), who state that there is limited research on the consumer perspective of omnichannel retailing. Moreover, according to van Delft (2013: 5), many studies have not covered omnichannel shopping behaviour adequately.

Additionally, there is a notable scarcity of studies specific to the South African context (Janhoffer, Barann, Cordes and Becker 2020: 5389), and this lack of research tailored to South Africa leaves a gap in understanding local consumer preferences and habits. According to a South African study conducted by Stiehler-Mulder and Mehlahe (2021: 1), research on omnichannel behaviour indicates a lack of up-to-date literature, with most studies dating before 2014. This gap highlights the need for more recent data to accurately comprehend current trends and behaviours.

Hence, this study aims to critically analyse shoppers' engagement within the omnichannel retailing environment in South Africa in the emerging 4IR environment. By revisiting and refining existing omnichannel methods, retailers can better serve their customers and thrive in the

evolving retail landscape. Researchers can contribute significantly to the body of knowledge on omnichannel retailing and assist local businesses in navigating the changing retail landscape (Ungiesbee, Holland and Vembar 2020: 3).

1.4 AIM OF THE STUDY

The study aims to critically analyse the nature of omnichannel shopper behaviour in the emerging South African Fourth Industrial Revolution environment.

1.5 RESEARCH OBJECTIVES

1. To describe the omnichannel shopper behaviour in the emerging Fourth Industrial Revolution in South Africa.
2. To determine the 4IR emerging trends in omnichannel retailing.
3. To analyse shopper behaviour on social media platforms.
4. To analyse omnichannel shopper behaviour on high- and low-involvement products.
5. To propose an omnichannel shopper behaviour model for South Africans in the emerging Fourth Industrial Revolution.

1.6 HYPOTHESIS

This study adopts a positivist epistemological stance, which is aligned with the use of structured data collection and statistical analysis to test predefined hypotheses. The aim is to uncover observable relationships between variables such as social media engagement, AI use, and consumer decision-making in omnichannel retail environments. This stance supports objective measurement and generalisation of findings across the target population.

The researcher established several hypotheses following the literature review to attain the objectives. The hypotheses for the objectives, focusing on high-involvement products, are:

H1: Social media engagement and usage significantly influence consumers' pre-purchase behaviour in the omnichannel journey.

H2: The use of AI technologies significantly influences pre-purchase behaviour in high-involvement omnichannel smartphone shopping.

H3: Pre-purchase behaviour significantly influences the purchase decisions of omnichannel smartphone shoppers.

H4: AI technologies significantly influence purchase behaviour during omnichannel smartphone transactions.

H5: Social media engagement does not significantly influence purchase behaviour directly in high-involvement omnichannel shopping.

H6: Purchase experience significantly influences post-purchase behaviour among smartphone consumers.

H7: AI technologies significantly influence post-purchase behaviour in the smartphone purchase journey.

H8: Social media engagement significantly influences post-purchase behaviour among smartphone buyers.

The following are the hypotheses for the objectives focusing on low-involvement products:

H1: AI technologies significantly influence pre-purchase behaviour in low-involvement grocery shopping.

H2: Social media engagement significantly influences pre-purchase behaviour.

H3: Social media engagement significantly influences purchase behaviour.

H4: AI technologies significantly influence purchase behaviour.

H5: Pre-purchase behaviour does not significantly influence purchase behaviour in low-involvement settings.

H6: Purchase behaviour significantly influences satisfaction.

H7: Purchase behaviour significantly influences perception of distribution effectiveness.

H8: AI technologies significantly influence satisfaction.

H9: Social media engagement significantly influences satisfaction.

H10: AI technologies do not significantly influence perceived distribution.

H11: Social media engagement slightly influences distribution perception.

1.7 OVERVIEW OF THE RESEARCH METHODOLOGY

This section provides a summary of the research methods applied during the study.

1.7.1 Research method

According to Creswell, Ebersohn, Eloff, Ferreira, Ivankova, Jansen, Nieuwenhuis, Pietersen and Plano Clark (2020: 41), research design encompasses qualitative, quantitative and mixed methods enquiries, offering clear guidance for conducting research procedures. Similarly, Saunders, Lewis and Thornhill (2019: 163) define research design as the overall blueprint of the study, delineating the sources for data collection, methodologies for data gathering and analysis and subsequent interpretation. This study utilised a descriptive, cross-sectional and quantitative research design.

1.7.2 Target population

Collis and Hussey (2013: 97) define a population as an identified group of individuals or items that are the focus of the research investigation. The study's target population was those who shop online and offline (omni-shoppers) in South Africa. Omni-shoppers who fall under the six to ten socio-economic measures (SEMs) formed part of the study population. The study's target population comprised 3760 South African shoppers (omni-shoppers).

1.7.3 Sample size

According to Babin and Zikmund (2016: 342), the sampling frame is also called the working population; it aims to identify the different elements in the target population. For this research study, thirty-five consumer panels from a marketing research firm were selected, comprising individuals who are South African citizens from various provinces, who shop online and offline, and who are within the SEM categories of 6 to 10.

1.7.4 Sampling method

According to Wolf, Joye, Smith and Fu (2016: 330), non-probability sampling is a method in which the samples are gathered based on random choice without a sampling frame. The researchers conducted non-probability sampling for this study.

Purposive sampling is when the researcher selects the respondents, considering the study's intent and selecting a particular aspect of the target population (Burns and Veeck 2020: 275). The researcher employed purposive sampling as the sampling technique for this research study, and the marketing research firm utilised consumer panels comprising individuals within the SEM categories 6 to 10.

1.7.5 Measuring instrument

A questionnaire design is a simple and convenient method of data collection. It is less time-consuming and inexpensive for both the researcher and the respondents (Burns and Veeck 2020: 172). The researcher used a self-developed questionnaire as a primary data-collection tool. The literature review informed the questionnaire design. The questionnaire comprised a combination of question types, including dichotomous questions, multiple-choice questions, seven-point Likert scale items, importance scale items, rating scale items and nominal scale measures.

1.7.6 Data collection and analysis

Wilson (2019: 266) describes data analysis as a process that commences with planning, followed by data gathering, validation and editing. The researcher coded, entered and analysed the data, converting raw information into useful information. According to Hague, Hague and Morgan (2013: 178), data from the questionnaires can be analysed manually or by computer in conjunction with statistical software. The dataset comprised the responses from the questionnaires. The data set was analysed using Statistical Software for Social Sciences (SPSS) version 28.

As the name implies, descriptive statistics depict actual data (Burns and Veeck 2020: 317). Some adopted statistical tests include frequency distribution, central tendency measures, variations, relationship measurements and simple descriptive statistics. At the same time, inferential statistics consists of processes for making inferences or drawing conclusions from quantitative data. Mendenhall, Beaver and Beaver (2012: 4) further explain that inferential statistics comprise two primary divisions: parametric and non-parametric. The researcher used descriptive and inferential statistical tests for this research study. Descriptive statistics summarise and describe the features of a dataset. They provide simple summaries of the sample and the measures.

The descriptive statistics conducted for this research study included the following:

- Mean: The average of all data points in the dataset.
- Standard Deviation: A measure of the variation or dispersion of a set of values.
- Median: Refers to the middle value when one arranges the data points in ascending or descending order. The interquartile range (IQR) is the range between the first quartile (25th percentile) and the third quartile (75th percentile), which measures the spread of the middle 50% of the data.

- Correlation Matrix: Shows the correlation coefficients between variables in a dataset, indicating the strength and direction of relationships.
- Component Matrix: In factor analysis, the component matrix shows the loadings of variables on each factor. It helps understand how variables relate to underlying factors.
- Total Variance Explained: Factor analysis shows the total variance in the data explained by the extracted factors. It helps determine the number of factors to retain.

The inferential statistics conducted for this research study included the following:

- Z Value: A statistic that tells one how many standard deviations a data point is from the mean. It is used in hypothesis testing to determine the significance of the results.
- P Value: The probability that the observed results would occur by random chance. It is used in hypothesis testing to determine whether to reject the null hypothesis.
- KMO (Kaiser-Meyer-Olkin) Test: Measures the adequacy of sample size for factor analysis.
- Bartlett's Test of Sphericity tests whether the correlation matrix significantly differs from an identity matrix, indicating that variables are related and factor analysis is appropriate.
- Initial Eigenvalues: In the context of factor or principal component analysis, eigenvalues indicate the amount of variance explained by each factor or component. They are used to determine the number of factors to retain.
- Fitness Model: Measures how well a model fits the data. It is often used in regression analysis and SEM.
- SEM is a statistical technique that simultaneously assesses the relationships among multiple variables, tests hypotheses and checks model fit, making it an inferential method.
- Cronbach's Alpha measures the internal consistency (reliability) of a set of items in a survey or test. Researchers use Cronbach's Alpha descriptively to assess the reliability of a scale and it also plays a role in inferential processes when evaluating the quality of measurements used in inferential studies.

1.7.7 Pre-Testing

When conducting research, it is essential to conduct a pilot with the questionnaire before administering the final questionnaire to the sample. Piloting the questionnaire assists the researcher in ascertaining the questionnaire's strengths and weaknesses in terms of formatting, wording, phrasing, unclear terminology, the order of the questions, instructions, or any other inconsistencies (Burns, Veeck and Bush 2020: 230).

The pilot study, conducted with ten random respondents who did not form part of the selected target respondents for the central administration of the questionnaire, allowed the researcher to make the relevant and necessary alterations to the questionnaire before administering it to the final sample of respondents. This thorough process ensured the questionnaire's reliability.

1.7.8 Inclusion and Exclusion

The study used specific criteria to select respondents, including individuals within SEM categories 6 to 10. The researcher only considered respondents over 18 years old eligible. The researcher required mandatory consent to uphold ethical standards and excluded those who did not consent. Furthermore, the study exclusively targeted South African shoppers, excluding non-residents, to maintain contextual relevance.

1.7.9 Delimitations of the Study

Given the researcher's control over the delimitation parameters, this study focused on omnichannel shoppers within South Africa who engaged in online and offline shopping and belonged to the SEM 6 to 10 categories. The decision to narrow the scope in this manner was made transparently, ensuring the audience was fully informed and included in the research process. By concentrating on this particular segment, the study aimed to capture the unique challenges and opportunities that emerged from the intersection of online and offline shopping experiences.

It is essential to acknowledge that the delimitation of omnichannel shoppers in the SEM 6 to 10 categories within South Africa does impose certain limitations on the generalisability of the findings. The study's conclusions may not apply to consumers in different geographic regions or socio-economic brackets. However, this focused approach enabled an in-depth exploration of selected consumers' experiences by offering valuable insights into omnichannel shopping behaviour in South Africa's 4IR era.

1.7.10 Limitations of the study

This study faced limitations due to the limited availability of previous research that explicitly focused on omnichannel shopper behaviour in South Africa's 4IR environment. The lack of existing studies in this area posed challenges for benchmarking and comparative analysis. Consequently, the researcher had to rely significantly on broader international literature on omnichannel shopper behaviour, which the researcher adapted to fit the South African context.

While limited prior research in this area could be perceived as a constraint, it also provided a unique opportunity for an original investigation. The absence of extensive existing research allowed this study to contribute meaningfully to the body of knowledge by offering fresh perspectives tailored to South Africa's unique market and cultural dynamics. This research explored omnichannel shopping behaviour in South Africa and highlighted this phenomenon's growing importance and relevance in the local retail landscape.

By situating the study within the South African 4IR environment and focusing on shoppers in the SEM 6 to 10 categories, this research has laid the groundwork for future studies. It has contributed to a deeper understanding of consumer behaviour and preferences in the omnichannel space, providing valuable insights that have implications for academia and industry. The findings underscore the emerging and evolving nature of omnichannel retailing in South Africa, emphasising the need for continued exploration in this field.

1.7.11 Validity

Wilson (2019: 204) states that validity is the extent to which a research instrument accurately measures what it is supposed to measure. Hence, Sürücü and Maslakçı (2020: 2696) maintain that validity when conducting research is imperative because results become meaningless if they cannot answer the research questions, which is the main aim of a research study. The researcher utilised content and construct validity for this study. The researcher established content validity by developing the questionnaire based on the literature review and established construct validity by piloting the questionnaire.

1.7.12 Reliability

According to (Babin and Zikmund 2016: 280), reliability is a measure of internal consistency established by determining whether the measurements of results are stable and consistent over time. In other words, the test yields the same results when conducted numerous times using the same measuring instrument. Reliability is essential for this study because it assesses whether the study fulfils its set aims and ensures that the results remain specific to the research under investigation. One method of computing reliability is calculating internal consistency. The evaluation of internal consistency includes the split-half or the coefficient alpha (Cronbach's Alpha) method (Kumar 2019: 273). The researcher calculated Cronbach's Alpha for the final questionnaire to measure the reliability of the measurements for each factor in this research study.

1.7.13 Confidentiality and anonymity

Confidentiality and anonymity are legal practices that protect human privacy. Confidentiality involves splitting, separating, or modifying confidential information to shield identifying information generated from the data by respondents. On the other hand, anonymity consists of gathering data without collecting personal identifying details from the respondents. Therefore, once data collection is complete, the researcher cannot determine which specific questionnaire a respondent completed (Kang and Hwang 2023: 6).

The research respondent received a document explaining the study's objectives, role and how the researcher would handle the respondent's confidentiality. The document also outlined any potential harm or risks associated with the research and explained how the researcher would minimise them. The researcher attached a one-page document to the questionnaire to inform the respondents about anonymity and confidentiality. The researcher did not ask respondents to provide their names, surnames, identity numbers, addresses, email addresses, or phone numbers; therefore, the researcher did not expose the identification of the research respondents.

1.7.14 Ethical considerations

The researcher's responsibility is to ensure that all research processes are consistently followed, such as using the appropriate scales of measurement to collect data, avoiding conflicts of interest and bias and following the correct procedures when engaging with all stakeholders (Malhotra 2019: 48).

Before data collection, the researcher obtained ethical clearance and permission to conduct research from the Durban University of Technology Institutional Research Ethics Committee (IREC). The researcher communicated the purpose and aims of the research study to all participating respondents. Moreover, the researcher informed all participating respondents that they could withdraw their input at any stage of the research process if they wished to do so. Additionally, the researcher asked respondents to complete an informed consent form to provide their consent to participate in the study.

1.7.15 Conceptual Framework

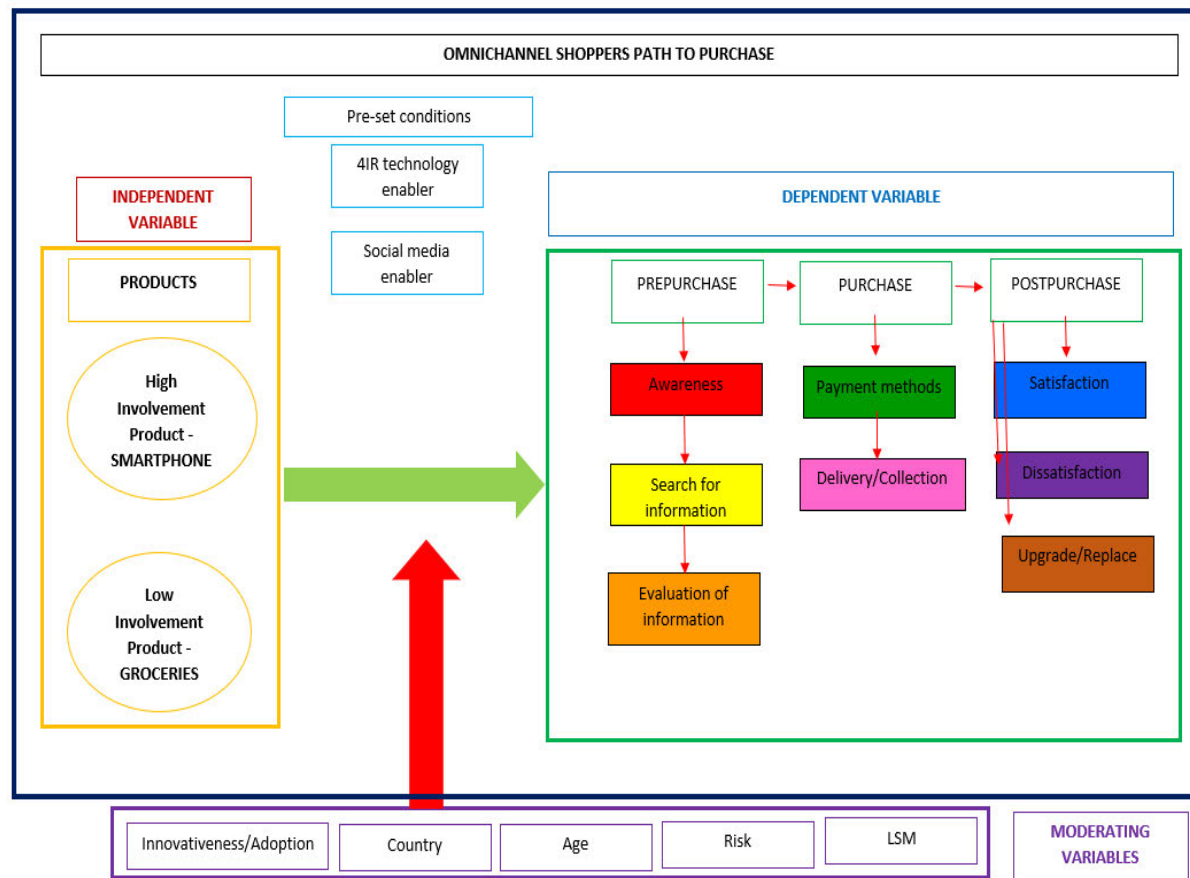


Figure 1. 3 Conceptual Framework

Figure 1.3 illustrates the omnichannel shopper's path to purchase by depicting various variables and their interrelationships.

1. Independent Variable: Products

- **High-Involvement Product:** Smartphones
- **Low-Involvement Product:** Groceries. These products are categorised based on consumer involvement in their purchase process.

2. Dependent Variable: Shopper Path Stages

- The shopper's path is divided into three main stages: pre-purchase, purchase and post-purchase.

Pre-purchase Stage:

- **Awareness:** The consumer becomes aware of the product.
- **Search for Information:** The consumer seeks information about the product.
- **Evaluation of Information:** The consumer evaluates the gathered information.

Purchase Stage:

- **Payment Methods:** The consumer selects a payment method.
- **Delivery/Collection:** The consumer chooses the delivery or collection method.

Post-purchase Stage:

- **Satisfaction:** The consumer assesses their satisfaction with the product.
- **Dissatisfaction:** The consumer might experience dissatisfaction.
- **Upgrade/Replace:** The consumer may consider upgrading or replacing the product.

3. Pre-set Conditions:

- **4IR Technology Enabler** refers to 4IR technologies that facilitate purchasing (AI in-store and online).
- **Social Media Enabler:** The role of social media in influencing the purchase path.

4. Moderating Variables:

- **Innovativeness/Adoption:** The consumer's propensity to adopt new products.
- **Country:** Geographic location influencing purchase behaviour.
- **Age:** The age of the consumer affects their purchasing decisions.
- **Risk:** Perceived risk associated with the purchase.
- **LSM/SEM (Living Standards Measure/Social Economic Measures):** Socio-economic status affecting purchasing power and behaviour.

Figure 1.1 visually represents how different factors and stages interact to form the omnichannel shopper's path to purchase, emphasising the importance of various pre-set conditions and moderating variables in shaping consumer behaviour.

This study's conceptual framework is grounded in the **Technology Acceptance Model (TAM)** and the **Unified Theory of Acceptance and Use of Technology (UTAUT)** to capture perceived usefulness/ease of use, performance and effort expectancy, social influence and facilitating conditions; the **Theory of Planned Behaviour (TPB)** and **Theory of Reasoned Action (TRA)** to model attitudes, subjective norms, perceived behavioural control and intention–behaviour links; **Situated Cognitive Theory** to account for context-dependent, embodied interactions across channels; **Self-Determination Theory (SDT)** to explain motivational drivers (autonomy, competence, relatedness) behind channel choice and engagement; and the **five-stage Consumer Decision-Making model** (problem recognition, information search, evaluation, purchase, post-purchase) to structure the shopper journey. These theories collectively inform the variables, moderators and hypothesised paths in the model and are discussed in further detail in **Chapter Four**.

1.8 Significance and Contribution of the Study

1.8.1 Theoretical contribution

This study advances understanding of omnichannel shopper behaviour in South Africa within the 4IR context, addressing key theoretical gaps in the literature. Existing research on omnichannel retailing is heavily concentrated in developed economies such as the United States, United Kingdom, Germany, and France, where digital infrastructure, consumer digital literacy, and retailer investment levels are typically high (Thaichon et al., 2023: 7; Lawry et al., 2021: 903). For instance, Lawry et al. (2021) examined omnichannel consumer engagement in the U.S. and Western Europe through the development of the Mobile In-store Experience (MIX) index, while Wang et al. (2025: 155) explored cross-channel experiences in mature retail markets using large-scale data analytics. Similarly, Nagy (2024: 588) focused on digital channel usage in emerging European markets, including Germany, yet still within a developed-economy infrastructure context.

Although these studies provide valuable insights into consumer behaviour, their findings are shaped by socio-economic and technological conditions that differ substantially from those in South Africa, where affordability constraints, uneven digital literacy, and infrastructural challenges such as load shedding influence adoption patterns. This creates a gap in context-specific knowledge, particularly regarding how high- and low-involvement products are navigated in omnichannel environments in developing markets. By focusing on the South African context, this

study contributes a developing market perspective and offers insights into how unique socio-economic and technological factors shape consumer behaviour, extending theoretical frameworks to better reflect emerging market realities.

By integrating 4IR-related technologies (e.g., AI and IoT) with consumer behaviour theories, the research presents a novel framework that explains how these technologies influence consumer decision-making processes across high- and low-involvement products. Specifically, it demonstrates how convenience, trust, personalisation and seamless channel integration affect shopper engagement in omnichannel environments.

The study also introduces a multidisciplinary approach, blending concepts from technology adoption models, consumer psychology and retail management to create a holistic understanding of omnichannel retailing. This integration enriches the discourse on how digital and physical retail channels coexist and how technological advancements mediate consumer experiences in emerging markets. Furthermore, the findings provide a foundation for future research, suggesting ways to adapt global omnichannel strategies to the unique challenges and opportunities in South Africa's 4IR landscape.

1.8.2 Practical Contribution

This research offers actionable insights for South African retailers seeking to navigate the rapidly evolving omnichannel environment shaped by 4IR technologies. It provides a detailed understanding of consumer preferences and expectations, enabling businesses to design strategies that foster seamless, integrated shopping experiences.

Key practical contributions include:

- The study identifies critical drivers of omnichannel adoption, such as trust in digital platforms, personalisation through AI and convenience in integrating online, offline and mobile touchpoints. Retailers can leverage these insights to build stronger customer relationships and improve retention.
- By uncovering how shoppers interact with 4IR technologies, the research equips retailers with the knowledge to implement tools like AI-powered chatbot virtual assistants and use predictive analytics effectively. These innovations can optimise inventory management, improve customer service and drive sales.

- The findings highlight differences in behaviour between high- and low-involvement product categories, enabling businesses to tailor their marketing strategies to specific segments. For example, personalisation and convenience may drive purchases of high-involvement products, while affordability and quick access could influence low-involvement product decisions.
- Recognising the challenges posed by South Africa's socio-economic disparities, the study suggests strategies to reach underserved consumers, such as mobile-first approaches and flexible payment options. These recommendations ensure inclusivity and broader market penetration.
- The insights can guide policymakers and industry stakeholders in fostering a supportive ecosystem for omnichannel retailing. Investments in digital infrastructure, data privacy regulations and public awareness campaigns can enhance consumer trust and facilitate technology adoption.

Hence, by aligning with South Africa's unique 4IR environment, this study provides a roadmap for retailers to remain competitive, satisfy evolving shopper expectations and contribute to a more inclusive and innovative retail sector.

1.9 OUTLINE OF THE CHAPTERS

Chapter One	Introduction
Chapter Two	Literature Review - Retailing
Chapter Three	Literature Review – 4IR
Chapter Four	Literature Review – Theoretical Grounding
Chapter Five	Research Methodology
Chapter Six	Data Analysis – Presentation and Interpretation of Demographic and Artificial Intelligence
Chapter Seven	Data Analysis – Presentation and Interpretation of Social Media and Risks
Chapter Eight	Data Analysis – Presentation and Interpretation of High and Low Involvement Products
Chapter Nine	Discussion of Results
Chapter Ten	Conclusions, Implications and Recommendations

Figure 1. 4 Outline of thesis chapters.

The preceding paragraphs provided a brief discussion of what each chapter entails:

Chapter Two: Evolution from single-channel to omnichannel retailing.

Chapter two encompasses the literature review. It provides detailed information about the South African retail landscape and the evolution of single-channel to omnichannel retailing. It discusses every channel, including social media, mobile and electronic commerce.

Chapter Three: The Fourth Industrial Revolution

Chapter three provides a literature review of the Fourth Industrial Revolution, tracing its evolution from Industry 1.0 to Industry 4.0. It also explores various 4IR components and their integration into retailing.

Chapter Four: Consumer behaviour and theoretical grounding

Chapter four presents a literature review of the theoretical frameworks, from which the researcher's conceptual framework is derived.

Chapter Five: Research methodology

Chapter five presents the research methodology. It outlines steps and micro steps for the research design, target population, sampling method, sample size, measuring instrument, data analysis, pilot testing, inclusions, exclusions, limitations, delimitations, validity, reliability, anonymity, confidentiality and ethical clearance.

Chapter Six: Findings, analysis and interpretation – demographic profile and artificial intelligence

Chapter six covers descriptive and inferential statistics for the respondents' demographic profile and the use of artificial intelligence in-store and online. The researcher processed the data into graphs and tables and utilised cross-tabulations to assess the relationship between variables and constructs. Relevant statistical calculations help interpret the data obtained.

Chapter Seven: Findings, analysis and interpretation – social media and risk

Chapter seven explores descriptive and inferential statistics for high-involvement products (smartphones) and low-involvement products (groceries). The researcher processed the data into tables, utilised cross-tabulations to assess the relationship between variables and constructs and conducted relevant statistical calculations to interpret the data obtained.

Chapter Eight: Findings, Analysis and interpretation – Consumer behaviour

In this chapter, the researcher processed the data into tables for high-involvement products (smartphones) and low-involvement products (groceries). The researcher utilised cross-tabulations to assess the relationship between variables and constructs and conducted relevant statistical calculations to interpret the obtained data.

Chapter Nine: Discussion of results

In chapter nine, the researcher briefly restated the study's objectives, research questions and hypotheses, providing a clear foundation for the discussion. Key findings were summarised and aligned with the objectives to establish relevance and significance. The results were then interpreted in practical, theoretical and contextual terms, with patterns, trends and unexpected outcomes highlighted. Plausible explanations were offered to provide deeper insight into the observed phenomena.

The researcher related the findings to previous research, emphasising similarities, differences and the study's contributions to the field. The discussion also addressed whether the findings supported or contradicted existing theories or studies, enhancing the scholarly value. Acknowledging the study's limitations, the researcher explored how these limitations might impact the interpretation or generalisability of the findings.

Chapter Ten: Implications, conclusions and recommendations

In this chapter, the researcher outlined the implications, conclusions and recommendations derived from the study. Theoretical implications were discussed, highlighting the study's contribution to existing theories and its ability to address gaps in the literature. Practical implications were presented, emphasising how the findings could be applied in real-world contexts, such as industry, policy and practice. The researcher also reflected on methodological implications, identifying the strengths and limitations of the research methods used and their relevance for future studies. Conclusions were drawn by restating the study's objectives, summarising key findings and integrating them into a cohesive narrative that underscored the study's significance. Finally, the researcher provided detailed recommendations for practice, industry and future research, offering actionable insights and identifying potential directions for further investigation to build on the contributions of this study.

1.10 SUMMARY

The introduction highlighted the transformative impact of the omnichannel model on shopper engagement, contrasting it with traditional and multi-channel retailing. It underscored the influence of 4IR on shifting shopper behaviour and the imperative for retailers to understand and adapt to these changes. The research identified a gap in understanding consumer behaviour within omnichannel retailing, particularly in South Africa, presenting an opportunity for further exploration. The study emphasised the urgency of research in the evolving 4IR environment to

provide insight into omnichannel retail shopper behaviour in South Africa. The chapter outlined the study's context, research problem, aims, objectives, methodology and structure. The next chapter will encapsulate a literature review focusing on the evolution of single channel to omnichannel retailing.

CHAPTER TWO

EVOLUTION FROM SINGLE-CHANNEL TO OMNICHANNEL RETAILING

2.1 INTRODUCTION

Retailing has undergone substantial changes, with a notable shift from traditional single-channel approaches to more sophisticated omnichannel strategies. The introduction provides an overview of this evolution in the context of consumer behaviour and market demands. Delving into the characteristics and limitations of single-channel retailing, the researcher will establish the foundation for comprehending the need for a more integrated approach.

Examining the transitional phase, the researcher discusses adopting multi-channel strategies, shedding light on the factors that drove this shift and the challenges faced during this period. This literature review includes an imperative section that defines omnichannel retailing and critical concepts such as channel switching and customer experience, drawing insights from scholarly contributions. With the impact of the pandemic in focus, the researcher analyses how retailers have adapted post-pandemic omnichannel strategies. This literature review provides an understanding of the evolution of retailing, offering insights for academics, practitioners and policymakers alike.

The word retail is derived from the French term *retailer*, meaning to cut a piece off or to break bulk. This concept underscores direct customer interactions, constituting a firsthand transaction (Sharma 2008: 1; Dhotre 2010: 47; Amit and Kameshvari 2012: 466). Retailing is a socio-economic system that facilitates the exchange of goods and services among individuals. In other words, retail refers to selling goods or commodities in small quantities directly to the end consumer. Retailing involves making products available to the public for personal use or consumption. In addition, retail transactions typically occur through various channels, including storefronts, online platforms, mail-order services and corporate sales.

In other words, retail acts as a unifying force, connecting consumers with manufacturers through transactions involving a modest consideration. The process not only addresses the fundamental daily needs of individuals but also fosters the emergence of new lifestyles. The retail process contributes to the community's well-being by promoting peace, happiness and prosperity (Rudrabasavaraj 2010).

2.2 OVERVIEW OF RETAILING

The traditional general store in any old Western movie is where local merchants offered full service to consumers who made up most of the retailing industry before the 1800s. This comprehensive service frequently includes finance, repairs and one-on-one assistance with customers to explain the capabilities and advantages of products. However, throughout the Industrial Revolution, advances in manufacturing resulted in a noticeable rise in the number of high-quality, reasonably priced goods. In the history of the textile business in the United States of America, manufacturers started producing ready-made clothing. Affordable shirts, dresses, slacks and blouses flooded the market and these pre-made clothes were in high demand. However, distribution factory owners faced the problem of how to sell these products. At the time, there were two shopping possibilities: selling goods directly to customers through stores owned by the business or using a commissioned agent, where a representative delivered manufactured items to shop owners who would then sell them to end consumers. The question manufacturers and retailers faced was which method met their demands. Customers gradually expressed their need for easy access to a large variety of reasonably priced goods and their willingness to pay a high price for this service. These consumer expectations gave rise to a new type of retailing known as the department store. Business historians state that a Parisian trader, Aristide Boucicaut (1810–1877), created the first department store (Introduction to Retailing 2024).

In addition, Le Bon Marche's department store offered the newest clothes and accessories in a beautiful environment. The Le Bon Marche layout and services were swiftly adopted by American retailers in the early 19th Century, from Boston to Richmond and from New York to Chicago, giving rise to the contemporary department store. Long into the post-war era, large downtown department stores dominated the retail industry in significant metropolitan city centres. Over 4,000 department stores existed in America in the 1950s, with many new ones sprouting in the suburbs. However, by the middle of the 1960s, more than half of the department stores that opened during World War II had closed, mainly in mid-sized American communities, many of which had just one or two downtown stores. Consequently, for three decades, numerous department stores went out of business. They were replaced by discount stores, shopping malls and complexes, eventually comprising 35% of the USA retail industry. Discount department stores constituted the fastest-rising segment of this phenomenon (Howard 2021: 3).

Moreover, customer loyalty quickly diminished as savvy customers willingly gave up the facilities of the downtown department store in exchange for lower pricing. Consequently, self-service stores

with long lineups at the pay points, muddled departments and aisles of discarded clothing became prevalent. By the 1990s, the internet significantly influenced the retail sector, driving innovation in products and marketing. Consumers no longer had to confine their purchases to physical brick-and-mortar shops and store hours. Shoppers had virtually unrestricted access to an incredible variety of goods. Shoppers could compare costs more quickly and effectively than ever with only a few clicks (Masojada 2023: 103).

Retailers realised that e-commerce optimises inventory while offering products with high profit margins. Consumers can purchase goods or services directly from sellers online through a computer browser. Business-to-consumer (B2C) online shopping involves buying goods or services from an online store instead of visiting a traditional brick-and-mortar store or shopping mall. Customers could find a product of interest by visiting the retailer's website or utilising a search engine shopping tab to look up alternative vendors. Shopping search engines or price check websites showed the availability and price of the same goods at several e-retailers. Consumers can shop online using various devices, including desktops, laptops, tablets and smartphones (Harshitha 2024: 154). In 2023, online retail sales in South Africa hit a significant milestone, amounting to R71 billion (Online retail in South Africa 2024 2024: 12). Due to technological innovation, a typical online store enables the user to explore the selection of goods and services offered by the firm, examine pictures or photographs of the goods and access details such as prices, features and specifications (Lumen Learning 2020, as cited in Hameli 2018: 8). Table 2.1 classifies retailer institutions (Tenekecioğlu, Tokol, Çalık, Karalar, Timur and Öztürk 2005: 192).

Table 2.1 Classification of Retailer Institutions

Classification	Type
Ownership:	• Independent Retailers
	• Unified Retailers (volunteer chains, retailer groups, chain stores, branch stores)
	• Manufacturers' sales stores
	• Cooperatives
	• Franchising
Products offered:	• General stores
	• Stores that sell limited types of products
	• Special stores
	• Department stores
	• Convenient stores
Activity:	• In-store retailing
	• Out-store retailing (sales by post, door-to-door sales, vending machines, sales by telephone, television and computer)
Service level:	• Self-Service Retailing (choose-get itself)
	• Retailers who provide limited service
	• Retailers who offer full-service
According to the place they are:	• Stores in the neighbourhood

(Source adapted: Tenekecioğlu, Tokol, Çalık, Karalar, Timur and Öztürk 2005: 192).

Table 2.1 depicts the classification of retailers' terms of ownership and types of retailers.

2.3 RETAIL IN SOUTH AFRICA

South Africa is a vast, multifaceted and dynamic nation with nearly 62 million residents dispersed in nine provinces and eleven official languages (Statistics South Africa 2023). In South Africa, the retail sector serves a variety of consumer groups through formal and informal sectors, with the formal sector accounting for 70% of sales (Masojada 2021). The retail landscape ranges from sophisticated, modern and formal retail chain stores (Woolworths, Checkers and Pick 'n Pay), which primarily serve upper-class consumers, to big-box cash-and-carry and hybrid stores (Makro), neighbourhood convenience stores (SPAR) and thousands of informal retail spaza shops selling food and grocery products in townships and rural communities.

South African consumer needs and expectations arise from specific political and socio-economic forces in South Africa. Serving a diverse range of South African consumers, a mix of formal and informal retail companies is essential to the country's retail and consumer goods industries. Online retailers include both official and informal retail operations. When viewing the several types of retailers in South Africa, it seems sensible to start distinguishing between formal and informal

retail. Retailer classification is a technique to choose which retail channels to disseminate their brand or product. Retailer classification is comparable to customer segmentation (Masojada 2021: 89).



Figure 2. 1 South African Retailer Classification

(Source: Masojada 2021: 89).

Figure 2.1 depicts the formal and informal retail classification in South Africa by illustrating a brick-and-mortar supermarket, an online retailer, a retail hybrid (physical store) and an informal supermarket, a spaza shop (physical store).

2.3.1 Historical Perspective on South African Retail

Table 2.2 Historical Perspective on South African Retail

Period	Description
Early 20th Century (1900-1930s)	In the early 20th century, small independent stores dominated South Africa's retail landscape. Through face-to-face transactions, they localised the shopping experience and offered the local communities a limited range of goods.
Apartheid Era (1940s-1980s)	Racial segregation during the Apartheid era shaped both consumers and businesses. It led to the emergence of large retail chains that served specific racial groups, while informal markets thrived in townships. Entrepreneurs established iconic South African retail brands during this time.
Post-Apartheid Transition (1990s-2000s)	The dismantling of apartheid brought significant changes. The retail sector experienced globalisation, with international brands entering the market. Malls became central to the retail experience, offering various products. The rise in supermarkets and the formalisation of supply chains marked a shift towards modern retail practices.
Late 20th Century (1980s-1990s)	The late 20th century saw the advent of computerised point-of-sale systems and early forms of electronic data interchange. Retailers started experimenting with technology to streamline operations and enhance customer experience. The focus was on integrating electronic systems within individual stores.
Early 21st Century (2000s-2010s)	The emergence of e-commerce in the early 21st century catalysed the shift to omnichannel practices. Retailers recognised the need to integrate online and offline channels to meet evolving consumer expectations. Initiatives such as online catalogues and home delivery services laid the groundwork for a more connected retail landscape.
Present Day (2020s)	South African retailers have made omnichannel strategies essential for engaging consumers. These strategies include integrating online platforms, social media and mobile applications. They aim to provide a seamless experience, allowing customers to transition effortlessly between physical stores and digital channels.

(Source: Masojada 2021: 101).

Table 2.2 traces the historical development of retailing in terms of distribution channels to the different target markets, from only face-to-face interactions between retailers and customers to integrating social media and mobile applications. The South African retail landscape has experienced changes due to political changes.

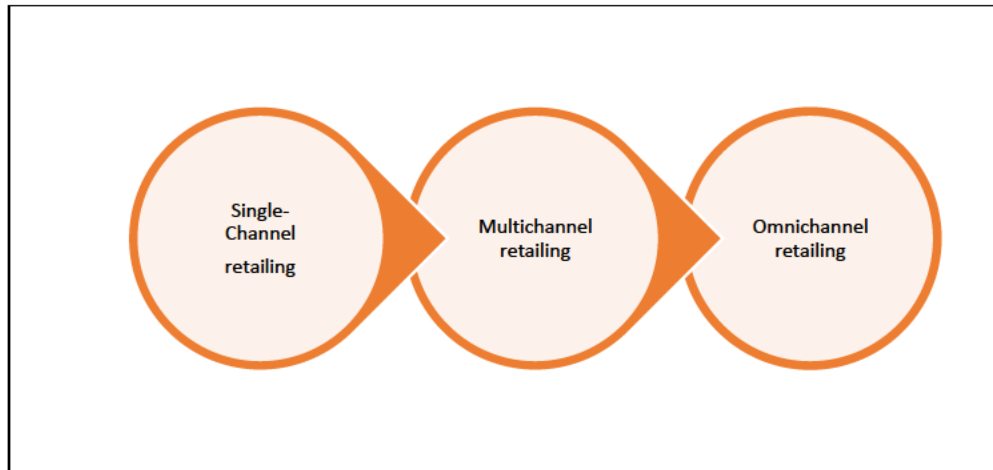


Figure 2. 2 Linear Progression of the shift from single channel to multi-channel and omnichannel retailing

Figure 2.2 illustrates the linear progression of retail and marketing strategies from single channel to multi-channel and omnichannel. The following section depicts this shift in more detail.

2.4 SINGLE-CHANNEL RETAILING

Single-channel retailing is an essential strategy whereby manufacturers or retailers interact with consumers through a single distribution channel. Traditionally, single-channel retailing was mainly brick-and-mortar. Most businesses in a single-channel environment were brick-and-mortar and high-street retailers. Advertising was the communication method of choice used to target consumers. The primary factor influencing sales in single-channel retail was the customer experience and the breadth and depth of the choice were significant contributors to this experience. However, with technological advancements, single-channels now include online stores, a catalogue and social media platforms (Arnold 2018). Although simple, the traditional approach restricts customers' engagement with the business. The focus is on a single, frequently specialised distribution channel that provides a simplified but possibly limited purchasing experience (Liu, Lobschat and Verhoef 2018: 5).

Several authors define the term single-channel retailing. One can identify a single channel in two ways: namely, exclusively through brick-and-mortar channels (Herhausen, Binder, Schoegel and Herrmann 2015: 310; Swami and Shah 2013: 339; Chen and Bell 2013: 60; Kogan 2012: 114; Biyalogorsky and Koenigsberg 2010: 4); and exclusively through direct channels (Xia and Zhang 2010: 519; Huang, Yang and Liu 2013: 522). Thus, single-channel retailing is where a producer

or retailer reaches customers through only one distribution option. Single-channel retail stores can be online (e-commerce) stores, catalogues, physical stores, mobile commerce (m-commerce) stores, or social commerce stores (s-commerce).

2.4.1 Physical channel (Brick and Mortar (B&M))

The definition of the brick-and-mortar (B&M) channel is a channel in which bottom-echelon inventory is available to satisfy customer demand at retail stores (e.g., a customer buying a Samsung smartphone from a Samsung retail shop) (Tetteh and Xu 2014: 63). Brick-and-mortar retailing remains a cornerstone of traditional commerce, allowing direct physical interactions where consumers can evaluate products firsthand (Song *et al.* 2024). This physical retail model is essential for understanding retail dynamics, including evolving market trends, consumer patterns and strategic competition (Bourg *et al.* 2023; Desmichel and Kocher 2020).

Since the consumer does not have to wait for the products to be delivered, physical stores enable retailers to establish a closer relationship with their customers and offer instant gratification (Agatz, Fleischmann and van Nunen 2008: 9; Grewal 2004: 8). In addition, by providing a personalised and rich multisensory customer brand experience through their sales representatives and having products in-store, customers can try, touch and feel before purchase. Consequently, retailers can further improve the quality of service provided (Görsch 2000; Herhausen, Kleinlercher, Verhoef, Emrich and Rudolph 2015: 11; Rigby 2011: 11; Webb, 2002: 97).

Additionally, by having physical stores, customers can return goods conveniently and offer immediate support with decision-making and any necessary setups, installations or repairs (Rigby 2011: 3; Grewal 2004: 8). Moreover, physical storefronts save the retailer money on tasks that customers may complete independently, such as selecting items from the shelf and carrying them home (Grewal 2004: 9). Furthermore, some customers do not gravitate toward technological innovations. Customers prefer physical retailers, as they offer a channel that better suits their respective needs, allowing for traditional face-to-face interaction and cash payments (Piotrowicz and Cuthbertson 2014: 9).

The brick-and-mortar retail scene in South Africa includes both unplanned and planned shopping centres. Unplanned centres often involve repurposing older buildings into retail spaces with little initial planning, such as town centres and transport hubs (Madinga and Lappeman 2023). Conversely, planned shopping centres are purpose-built to cater to specific demographic needs

in certain areas (Lumen 2020). According to Buwa (2020), planners distinguish planned centres by their design, size, management and the variety of shopping they support. These centres often host anchor tenants under long-term lease agreements and provide space for smaller outlets that cater to impromptu shopping needs. Buwa (2020) also identifies six types of brick-and-mortar locations based on size, location, tenant composition and function: small stand-alone convenience centres, neighbourhood centres, community centres, small and large regional centres and super-regional centres.

2.4.2 Digital Commerce

Digital commerce represents a profound change in consumer-business interactions, characterised by the online purchase and sale of goods and services using digital technologies (Ntumba, Aguayo and Maina 2023). This evolution has transformed retail by offering consumers unprecedented convenience, choice and global access. Retailers are increasingly adopting digital commerce as a strategic approach to broaden their sales avenues and maintain competitiveness in today's market (Schiessl, Korelo and Dias 2023). As consumer preferences shift towards online interactions, businesses integrate e-commerce solutions to streamline transactions and connect with customers digitally (Sudirjo, Ratnawati, Hadiyati, Sutaguna and Yusuf 2023). This adaptation boosts sales opportunities and secures a company's relevance in a market where digital accessibility and convenience are crucial (Mir 2023).

Firms across various sectors, including retail, services and manufacturing, understand the importance of establishing an online presence. This online expansion helps widen their market scope and improve the customer experience, fostering loyalty (Srivastava and Thaichon 2023). In the current competitive, interconnected global economy, incorporating online shopping has become essential for ongoing growth and market position (Alrawad, Lutfi, Alyatama, Al Khattab, Alsoboa, Almaiah, Ramadan, Arafa, Ahmed, Alsyounf and Al-Khasawneh 2023). Companies adopt various strategies such as e-commerce, m-commerce and s-commerce to enhance online engagement and align with modern business practices. On the other hand, Lyu, Krasonikolakis and Chen (2023) emphasise the impact of mobile technologies on shaping in-store purchasing decisions.

i. Online (e-commerce)

E-commerce emerged in the mid- to late-1990s, shifting the focus of communication, information technology and the internet from business-to-business to customer-focused enterprises. Instead

of replacing physical stores, the online presence (digital channels) is now a part of the mix, as supported by several scholars (Zhang, Zhao, Cheung and Lee 2014: 80; PwC 2018c; Deloitte 2018a).

E-commerce first appeared in 1971 in Silicon Valley, USA, when Stanford University students utilised ARPANET (a forerunner to the internet) to engage in the buying and selling of marijuana (Taher 2021; Kassem 2023). E-commerce resurfaced commercially in 1970 with the online sale of a Sting album through the NetMarket website (Rosário and Raimundo 2021). Since then, the industry has undergone significant changes, marked by extensive technological advancements. This term gained prominence as businesses increasingly incorporated technology into their operational processes (Kassem 2023). The proliferation of the internet, starting in 1960, enabled companies to utilise technology extensively, not just in product development and distribution (Blázquez 2014: 98).

E-commerce is variously defined by scholars and institutions, reflecting a range of perspectives. Dedi (2023) describes e-commerce as the online buying and selling of goods and services, or transmitting funds or data, over an electronic network, which may involve negotiations over the internet using devices like mobile phones or systems such as EDI (electronic data interchange) or extranet. Similarly, Jain, Malviya and Arya (2021) define transactions as transactions whereby customers make orders and purchase commitments online, distinguishing these from orders made through phone, fax, or email. Rizaldi and Madany (2021) align their definition with the original Organisation for Economic Co-operation and Development (OECD) scope, distinguishing between a narrow version, where transactions are processed and recorded using internet-based systems and a broader one that utilises computer network systems instead of the internet.

This study defines e-commerce as buying and selling goods, services and ideas over the internet, encompassing transactions made through any Internet-connected device like desktops, laptops, smartphones, or gaming consoles. This interpretation also includes transactions where customers make payments online and pick up goods in-store or have them delivered. The growing adoption of e-commerce across various sectors has led scholars and practitioners to categorise it into different types, reflecting its diverse applications.

However, some retailers, called pure players, have decided to operate solely in the digital channel (McCormick, Cartwright, Perry, Barnes, Lynch and Ball 2014: 265). This type of retailer outperforms the competition in product categories with standardised products. According to

Herhausen *et al.* (2015: 10), price is the main decision criterion. This is in line with the claim of Grewal (2004: 8), who states that the incentives for shopping online tend to be economical. Compared to the physical channel, the internet allows businesses to provide customers with more product selection and round-the-clock accessibility (Rigby, 2011: 3; Agatz *et al.* 2008: 10). Furthermore, the digital channel can save clients' money on search expenses by offering comprehensive product information, reviews, suggestions, price comparisons and a simple and quick checkout procedure (Rigby, 2011: 4; Agatz *et al.* 2008: 9; Webb 2002: 99). Hult *et al.* (2019) and Zhuang *et al.* (2018) highlight that the ability to access a variety of discounts and promotions online plays a key role in helping consumers save money. Online platforms offer shoppers the convenience of comparing prices across different retailers, a feature that is often less accessible in brick-and-mortar stores. These elements are precious to time-pressed customers since they enable them to expedite purchasing in a faster manner when compared to shopping in a physical store (Grewal 2004: 9). In addition, adding to the consumer experience, e-commerce allows users to consider their purchases while in the comfort of their homes (Zhang, Farris, Irvin, Kushwaha, Steenburgh and Weitz 2010: 169).

The three essential e-commerce components (online shopping) are searching, browsing and purchasing. Moreover, online searching is looking for goods or services a customer wants to buy online or in person (Jeng 2013: 772). Online browsing is the casual exploration of goods or services that a customer may or may not desire to buy (Elkhatib, Killick, Mu and Race 2014: 965) and online purchasing is the act of purchasing goods or services from the online store (Masoud 2013: 78).

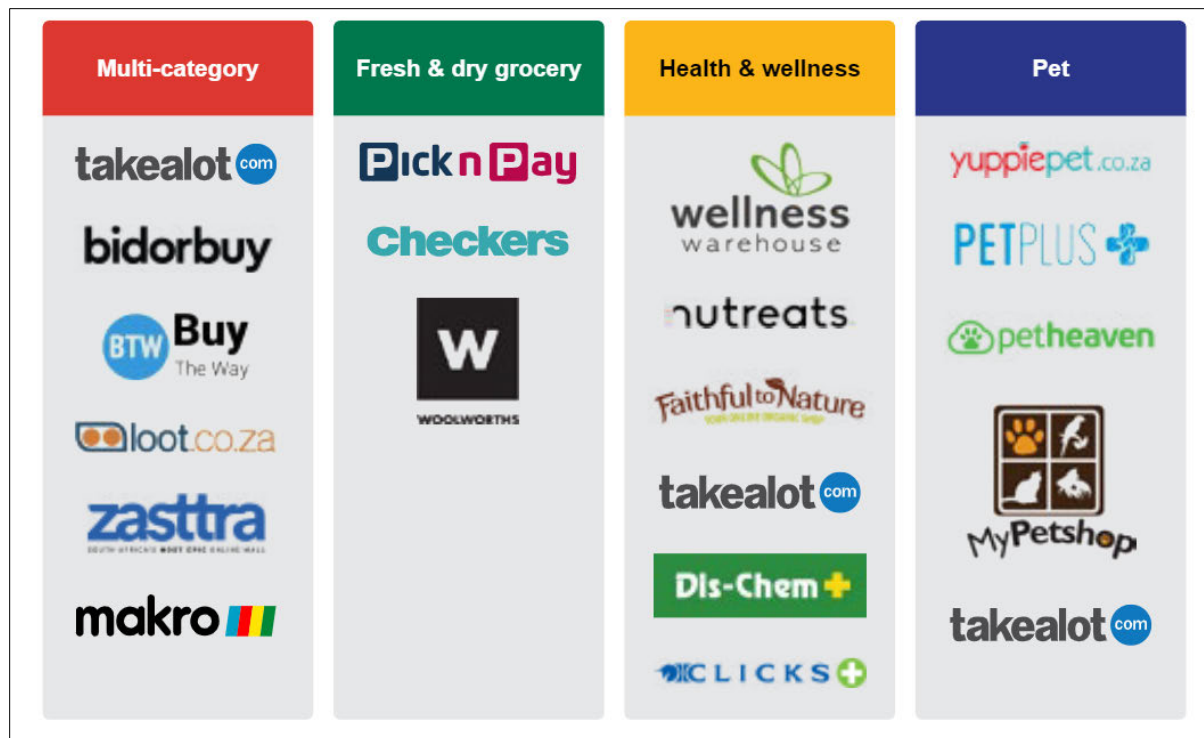


Figure 2. 3 E-Retailers in South Africa

(Source: Masojada 2021: 100).

Figure 2.3 shows examples of South Africa's e-retailers. Many e-retailers have brick-and-mortar stores and online stores such as Pick n Pay, Checkers, Woolworths, Makro, Dis-Chem and Clicks.

ii. Mobile (m-commerce)

The origins of mobile commerce, or m-commerce, are rooted in the early 1990s, when the potential of wireless communication and mobile technology began to unfold. During this time, the first generation of mobile phones, which primarily offered essential voice communication and were notably larger and less functional than today's devices, came into existence. These devices set the groundwork for m-commerce by allowing mobile communication on the go globally (Shukla and Nigam 2018: 132).

By the early 2000s, a new wave of advanced smartphones with internet and multimedia capabilities emerged, marking a pivotal moment for mobile technology (Khan 2023). This period saw the launch of mobile data services, which facilitated the development of various m-commerce applications and services, such as mobile ticketing, banking and content delivery, providing a new level of convenience for accessing services using mobile devices (Joseph 2023; Shrivastava,

Prakash and Ratna 2019). The spread of SMS (Short Message Service) also paved the way for mobile marketing and advertising, enabling businesses to connect directly with consumers on their phones (Lucas, Lunardi and Dolci 2023).

As smartphones have become more widespread and affordable, the m-commerce landscape has experienced significant transformation (Shrivastava *et al.* 2019). Innovations like Apple's App Store and Google Play have revolutionised mobile interactions, fostering a vibrant ecosystem of applications and services across various sectors, including entertainment, healthcare, transportation, hospitality and retail (Bandyopadhyay 2011: 50). Today, m-commerce is a vital component of the digital economy, with mobile devices being indispensable tools for banking, communication, entertainment, shopping and more, providing unprecedented convenience and accessibility for users worldwide (Lucas *et al.* 2022).

Consumers prefer online shopping using mobile devices like smartphones or tablets. Shoppers increasingly use their phones due to the convenience of technological advancements, including branded shopping apps, catalogues, 5G Wi-Fi and social shopping. In 2021, Shopify merchants made 71% of their online sales through shoppers using mobile devices. The growing global demand for smartphones and tablets continues to drive the expansion of online retail. Experts anticipate that s-commerce sales, an essential aspect of mobile purchasing, will triple by 2025. (Keenan 2021: 2). Therefore, retailers must embrace m-commerce due to rising competition, leaving traditional retailers to integrate m-commerce into their strategies to stay competitive. Quick-service sectors like transportation, fast food delivery and online retail have widely adopted mobile payment services and products. However, traditional in-store retailers are still transitioning (Ghazali, Mutum, Chong and Nguyen 2024; He *et al.* 2020). In many sectors, mobile orders have already overtaken desktop orders (Watras 2017: 30). Simultaneously, the Polish Chamber of Digital Economy has conducted research on M-commerce.

The 2016 Kupuje Mobilnie report shows that 97% of consumers make various purchases using mobile devices. Up to 39% of mobile customers make purchases using a mobile device. Moreover, 76% of shoppers make purchasing decisions using a smartphone (Grzybowska 2016: 14). Customers utilise their mobile devices for various purposes, such as maintaining their loyalty cards, making payments, interacting with customer support representatives and viewing product images. Furthermore, the COVID-19 pandemic forced individuals to stay home, increasing online sales, although in-store purchases remained the most significant retail channel in South Africa (CB Insights 2021). According to Hung-Joubert and van Huyssteen (2017: 379), shoppers prefer

using mobile devices during their shopping journey (mobility and apps). The convenience of mobile shopping contributes to the expansion of mobile commerce. Certain businesses have realised that their customers demand more accessibility and convenience and that the internet channel alone is insufficient to meet their needs. As a result, customers now view smartphones as a distinct sales channel. Retailers are rapidly changing the use of smartphones as a unique retail channel by developing increasingly sophisticated apps and mobile versions of their websites to meet consumer demand (Brynjolfsson, Hu and Rahman 2013).

The expansion of mobile payment solutions is a significant improvement for mobile users. Three out of four shoppers claim that using a mobile device to make a transaction saves them time. Up to 90% of shoppers claim that m-commerce could offer a better customer experience. The main difficulties preventing mobile buying are pages and links that are difficult to click on and security concerns. Additionally, at least 50% of consumers want more product reviews and information from online shops (Oberlo 2021). Yang *et al.* (2021: 78) highlighted key obstacles, such as inadequate infrastructure and uneven acceptance among retailers, which impede the use of mobile payments for purchasing high-value products like smartphones.

Furthermore, more features relate to the mobile sales channel, even though many are similar to the web channel. Piotrowicz and Cuthbertson (2014: 5) claim that smartphones have made it possible for customers to combine online and offline shopping in a new way because they can instantly compare prices or read customer reviews while also assessing the non-digital items in the physical store thanks to mobile internet access. Liébana-Cabanillas *et al.* (2018: 23) noted that security concerns and lack of familiarity hinder the broader use of payment apps. These issues are especially significant for high-value purchases like smartphones, where consumers often prefer traditional options like credit or debit cards.

Many retail shopping experiences occur on mobile phones, highlighting that customers make more purchase decisions through digital touchpoints. This new trend significantly influences how shoppers choose what to buy, how businesses drive impulsive and unexpected purchases and how to market products (Goldberg 2021: 1). Moreover, as many interactive options emerge and technologies grow, consumers expect retailers and brands to deliver fast, convenient and personalised shopping experiences across all channels and platforms (Bardwell 2013: 1).

M-commerce enables retailers to expand their customer base beyond the confines of physical stores and traditional online platforms, providing the convenience of shopping anytime and anywhere and influencing consumer behaviour (Micheal *et al.* 2020; Hu, Qu, Li and Sethi 2021).

iii Critical elements of m-commerce retail include:

- **Mobile Shopping Apps:** Retailers offer mobile applications that allow users to explore products, read reviews, compare prices and purchase items on the go. These apps often feature personalised recommendations and streamlined checkout processes to improve the user experience (Micheal *et al.* 2020).
- **Mobile-optimised Websites:** Retailers ensure their websites are mobile-friendly, providing a responsive and user-friendly interface that adjusts to different screen sizes and resolutions, making online shopping accessible from any device (Hu *et al.* 2021; Micheal *et al.* 2020).
- **Mobile Payments:** M-commerce supports secure and convenient payment options tailored for mobile use, such as digital wallets and in-app payments, enhancing the ease of transactions (Omar *et al.* 2021).
- **Location-based Services:** Using location technology, M-commerce offers personalised shopping experiences based on a user's location. Retailers can target promotions, discounts and store suggestions to customers in the vicinity, thus increasing engagement and encouraging visits to physical stores (Bandyopadhyay and Sen 2011: 49).

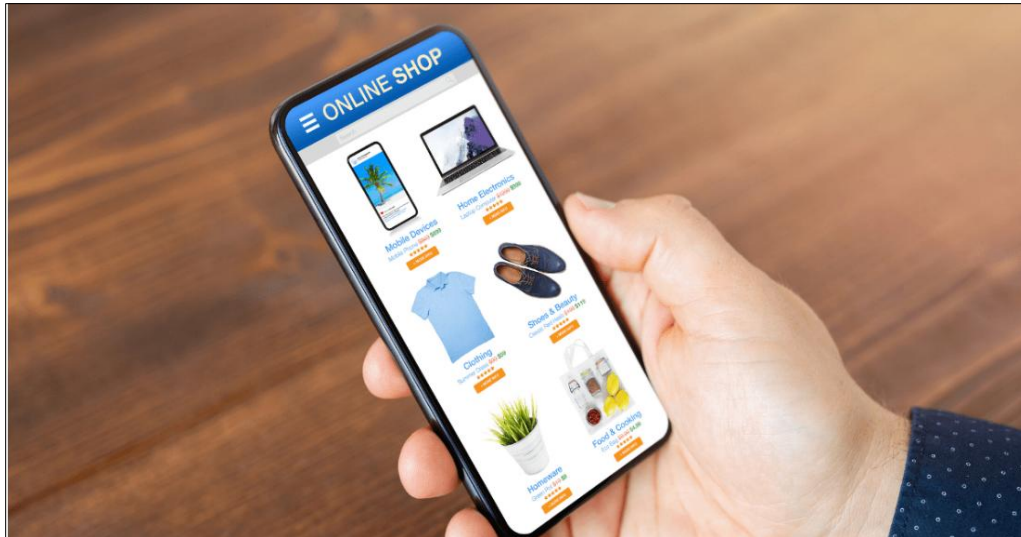


Figure 2. 4 Mobile Commerce

(Source: SME South Africa 2024)

Figure 2.4 depicts an online retail store on a mobile device. Many retailers have mobile-optimised their websites which allow shoppers to shop using mobile phones.

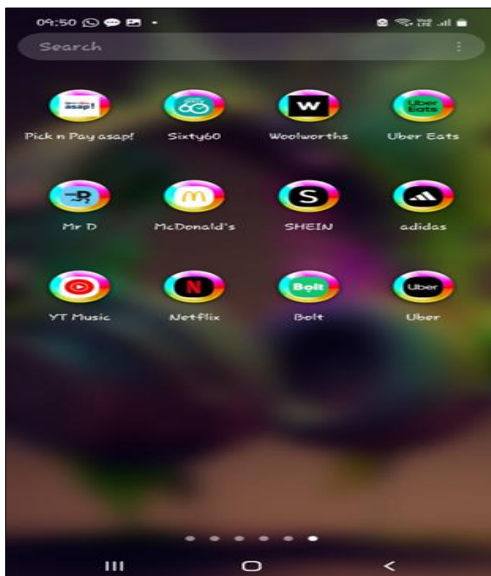


Figure 2. 5 Mobile Shopping Apps

(Source: Researchers image photo of mobile shopping application)

Figure 2.5 presents a mobile phone with several mobile applications (apps) used for shopping, such as Pick n Pay asap, Checkers Sixty60, Woolworths Dash, Uber Eats, Mr D, McDonald's, Shein and Adidas.

vi Social Media (S-Commerce)

In addition to purchasing online and using mobile devices, customers enjoy discussing, sharing and requesting feedback from others about their online shopping experience. Due to social media's rising popularity, customers can develop symbolic relationships with brands (Zhang *et al.* 2014: 79). Social media platforms such as Facebook and Instagram have progressed, so marketers and influencers may tag products on posts and photographs, enabling users to click through and make purchases (Arnold 2018).

Table 2.3 Social media platforms that offer online shopping.

Social Media Platform	Logo	Features
Facebook		Facebook has integrated Marketplace and Shops into e-commerce.
Instagram		Instagram shopping allows users to buy products directly from posts and stories.
WhatsApp		Business profiles can showcase products and services and users can place orders directly.
YouTube		Integration with shopping features allows users to purchase products directly from videos.
Twitter		Shops and product tags are available for direct purchasing options.

Table 2.4 illustrates examples of the most popular social media platforms used for retail purposes, such as Facebook for the marketplace and other platforms whereby shoppers can purchase through a link that directs them to the retailer's website. Consumers spend substantial amounts of time online and s-commerce enables retailers to target them on the channels and platforms where they spend most of their time. Consumers seek convenience. Therefore, s-commerce is a merger between social media and e-commerce. The complete shopping experience can take place using a social media platform. For example, Patron Tequila was the first alcoholic beverage brand to use Instagram for customers to place an order and use the in-app checkout feature. In addition, TikTok is a sales platform whereby influencers create online shopping content with the hashtag #tiktokmademebuyit as a trending hashtag. Facebook, Instagram, TikTok and Pinterest are popular s-commerce experiences (Swift Admin 2021).

Moreover, s-commerce involves interaction through social media influencers, digital platforms and critical e-commerce components. Half of customers in China purchase on social media, accounting for roughly \$351 billion in sales in 2021, compared to only 30% of USA customers. The rivalry escalates, with 49% of businesses investing in s-commerce content in 2022. Investors anticipated increased marketing campaigns using SMS and Facebook Messenger, branded shopping applications and s-commerce content on TikTok and Instagram (Keenan 2021: 2). According to the MiKMAK's shopping index, 53% of all e-commerce traffic in 2021 derived from social platforms. For example, someone discovers a flavour of ice cream while browsing Instagram. One might get distracted or put one's phone down and later be reminded of that same product while watching a YouTube video. Consumers could search for a product on their favourite retailer's app, place an order while picking up their children from soccer practice and have the product in their hands when they return home for supper. Thus, different platforms target consumer segments and stages of a consumer buying journey.

For example, YouTube supports long-form content and is used by brands requiring more product engagement and entertainment, such as those offering tutorial reviews for electronics and home care items. At the same time, Pinterest is ideal for driving planning and purchase intent (Liesch N/A). With Instagram's retail shopping channel, customers can check out and purchase directly on social media platforms without logging onto a retailer's website. Social media and Instagram have democratised social engagement. Many shoppers discover products on social media platforms such as Instagram; however, they check out and purchase from Amazon. However, with the Instagram shopping channel checkout, shoppers do not have to go to Amazon to complete the purchase transaction (Mottl 2019).

According to Bazaarvoice, one in three shoppers have purchased on social media globally in the past year. Hence, the shopping journey can happen on social media (Swift Admin 2021). According to Woolworths, many shoppers use non-traditional platforms such as TikTok and Instagram to shop. Woolworths is positioning its social media platforms as an extension of its marketplace through new tools such as virtual try-ons, allowing a first in South Africa. Woolworths is trialling a phygital solution by integrating its social media platforms with its physical outlets through an in-store instashop, allowing shoppers to browse their digital friends' favourites on Instagram while browsing inside a Woolworths store. Woolworths is considering Nascent Technologies, Near Field Technologies (NFT), or immersive metaverse shopping (Staff Writera 2022). For example, in South Africa, Woolworth's Instagram channel offers two shopping methods: using the Instagram Shop feature to create product collections and promote cross-shopping or through their partner integration, which lets them tag customer-generated content inspired by Woolworths, with the customer's consent. In addition, Woolworths has developed a method to link TikTok directly to a shoppable product basket featuring popular products among South African TikTok users. Retailers are also exploring a checkout process that consumers can complete entirely on social media (Malinga 2022).

v. Catalogue

On the other hand, the catalogue channel is a more traditional retail outlet where clients can place orders over the phone or by standard mail. The retailer can reach a significant customer base in this way. Another benefit of catalogues is that, compared to websites, they can present images of prints and patterns differently and provide a unique experience for the buyer (Hansell 2002). Moreover, catalogues allow for more flexible buying because they are easy to use and do not require internet access (Wallace, Giese and Johnson 2004: 251). Customers can remain anonymous when using catalogues and unlike mobile and the internet, the cost of printing and mailing these catalogues to prospective clients is a drawback for this retail channel and the information in the catalogues ages quickly (Gulati and Garino 2000).

2.5 TRANSITION OF MULTI-CHANNEL RETAILING

The retail industry has experienced unprecedented, disruptive changes. Engaging with a retailer through various channels has transformed the retail mix. From business models to what customers need and expect from retailers and how customers behave has changed significantly (Roggeveen and Sethuraman 2020: 9). This shift influenced consumer purchasing patterns

(Zhang *et al.* 2014: 80). In the context of a multi-channel economy, channels such as malls, high streets, hypermarkets, supermarkets, kiosks, convenience stores, mail order and online retailers are proliferating. Organisations perceived these channels as focusing on distinct customer categories or combining consumer segments and purchasing occasions. Regarding the intended consumer experience and channel economics, retailers handled various channels differently. Many companies have been operating on pure-play digital channels since the early 2000s. The fear of losing out on the consumer digital revolution has been a driving force for many companies' multi-channel strategies, which include internet channels. At first, brick-and-mortar retailers had to deal with the challenge of adding online channels to the existing channel mix. As a result, Verhoef, Kannan and Inman (2015: 175) claimed that issues arose with client management and channel integration. Furthermore, integrating online and physical channels became more intricate with the introduction of mobile and social media, prompting retailers to develop a multi-channel strategy (Levy, Weitz and Grewal 2013: 66).

2.5.1 Definition of multi-channel retailing

Several authors definitions of multi-channel retailing regarding its transition are listed in Table 2.4.

Table 2.4 Definition of multi-channel

Term	Definition
Multi-channel	Zhang, Farris, Irvin, Kushwaha, Steenburgh and Weitz (2010: 170) state that multi-channel retailing is a collection of actions that involve selling products or services to customers over multiple, independently created channels.
	The actions involved selling goods or services to customers through many channels (Zhang, Farris, Irvin, Kushwaha, Steenburgh and Weitz, 2010:168).
	The development of multi-channel retailing followed the expansion of the internet. Experts describe it as a distribution strategy that separates physical and online channels, using multiple selling channels, platforms, or media to serve clients (Frazer and Stiehler 2014: 655).
	According to Gupta (2020), multi-channel retailing focuses on using multiple channels to ensure broader customer engagement across those channels.
	It can be said that multi-channel retailing involves reaching customers through multiple distribution options, enabling businesses to engage with customers across channels such as online, physical stores, social media and more.

2.5.2 Factors Driving Multi-Channel Adoption

Table 2.5 provides a list of factors that have enabled the multi-channel adoption.

Table 2.5 Factors Driving Multi-Channel Adoption

Factors	Description
Market Expansion Strategies	The shift from single to multi-channel retailing reflects retailers' strategic initiatives to expand market reach. By combining and blending different distribution channels, retailers aim to tap into diverse consumer segments and geographical areas, fostering business growth and competitiveness (Liu, Lobschat and Verhoef 2018: 4).
Strategic Flexibility	Multi-channel retailing provides retailers with strategic flexibility, allowing them to adapt to dynamic market conditions and changing consumer expectations. This adaptability is crucial in an era when retail landscapes continually evolve (Liu, Lobschat and Verhoef 2018: 6).
Enhanced Customer Experiences	Retailers recognise the importance of offering enhanced customer experience. The multi-channel approach enables them to create a seamless journey for consumers, from online platforms to physical stores, fostering customer loyalty and satisfaction. Showrooming refers to customers observing, obtaining information and occasionally testing products at physical retail establishments but making online purchases from a physical retailer, frequently at a reduced cost. (Burns, Gupta and Hunchins 2019:101).
Technological Integration	Advancements in technology, particularly the proliferation of information devices, played a pivotal role in this transition. Retailers leveraged technology to create seamless, interconnected consumer experiences, transcending the limitations of a single-channel approach. The number of customers shopping on computers and mobile devices has dramatically increased. Retailers are, therefore, enhancing their online visibility and fusing traditional brick-and-mortar, e-commerce, s-commerce and m-commerce experiences for the consumer. (Lumen Learning 2020).
Consumer-Centric Adaptation	Retailers embraced multi-channel retailing to align with evolving consumer behaviours and preferences, recognising the need for a diversified approach to engaging customers across various channels and touchpoints (Quilisch-Rock 2023).

2.5.3 The transition from multi-channel to omnichannel

Omnichannel retailing stands apart from multi-channel approaches by prioritising customers' expectations and placing a seamless experience at the forefront, regardless of the chosen channel (Davies 2021; Winkler 2019). A distinctive feature lies in the ability of consumers to initiate the purchasing process on one channel, such as a website and seamlessly conclude it on another, like a mobile app (Davies 2021). While multi-channel retailing emphasises the interaction between various channels, omnichannel retailing extends further by incorporating community engagement and leveraging access to mass media and social media (Verhoef *et al.* 2015: 176). To remain competitive, retailers must not merely introduce additional channels but should concentrate on delivering a cohesive and seamless customer experience through omnichannel strategies (Jin, Caliskan-Demirag, Chen and Huang 2020: 107595; Jocevski, Arvidsson, Miragliotta, Ghezzi and

Mangiaracina 2019: 79). This approach ensures that consumers enjoy a consistent and integrated journey, reflecting the evolving landscape of consumer expectations in the retail sector.

For example, many stores provide discounts for checking in on Facebook. Connecting with consumers through omnichannel retailing involves using various technologies like apps, iBeacon and mobile positioning. Consumers can visit a physical showroom to explore products and then purchase them online or visit a webroom to find discounts they can redeem in physical stores. For consumers, omnichannel retailing offers more ways to learn about products and enhance their shopping experience. For retailers, it enables the seamless integration of multiple channels, helping them gather consumer feedback on their products and services (Huang 2021: 4).

2.6 OMNICHANNEL RETAILING

The term omnichannel originates from the Latin omni, meaning all. Its use implies that businesses can continuously communicate with customers through a variety of channels, including websites, physical storefronts, kiosks, direct mail, catalogues, call centres, social media, mobile devices, gaming consoles, televisions, networked appliances, home services and more (Rigby 2011: 3). The rapid evolution of digital commerce necessitated the creation of a new term, omnichannel retailing. The linked and seamless consumer experience is the hallmark of the omnichannel retail strategy. Since some consumers will complete their journeys in the real world and others in the virtual one, brand companies design integrated customer experience strategies instead of maintaining separate offline and online channels. A uniform view of the brand across touchpoints and a unified view of the consumer across channels are both present in an omnichannel retail paradigm. The brand companies may not own, control, or manage these touchpoints due to the possibility of intermediaries reaching them (Rigby 2011: 66).

With omnichannel distribution, retailers must work together to provide the experience customers want rather than compete as they did in the past (multichannel retailing). Customers can use their phones, tablets, desktops, or voice-activated devices to place orders from anywhere in the globe, from their home, someone else's home, the brand's store, or any other retailer. Likewise, customers can get the product wherever they like: at home, at a brand store, at another store, at a designated pickup point, or any other location. Introducing new channels changed the consumer journey by providing more touchpoints (Leva and Ziliani 2018: 304).

Expanding available channels has highlighted businesses' need to create an omnichannel consumer experience. According to Verhoef *et al.* (2015: 175), the retail industry's digitalisation resulted in an increasingly complicated consumer experience, contributing to the progression from multi-channel to omnichannel due to the increased growth in mobile and social media as essential retail channels. Moreover, contact between consumers, retailers and brands as the division between the physical and digital channels disappears (Piotrowicz and Cuthbertson 2014: 10). In addition, consumers expect that when they contact one channel, they can continue on another channel with all the contextual data preserved across channels (Piotrowicz and Cuthbertson 2014: 8). Brand stores, other retail stores, vendors, or company-managed delivery centres can handle order fulfilment, or any combination of these, from the time customers place their orders until they receive their products. Since omnichannel customers transition from multi-channel consumers by using multiple channels simultaneously for the same transaction, businesses must design omnichannel commerce to cover the entire domain, from customer acquisition to fulfilment and post-purchase.

2.7 DEFINITION OF OMNICHANNEL RETAILING

Several authors have defined omnichannel retailing, as shown in Table 2.6.

Table 2.6 Definition of Omnichannel Retailing

Term	Definition
Omnichannel	Omnichannel marketing is "the design, implementation, coordination and evaluation of channels" to maximise customer value through efficient customer acquisition, retention and development. (Neslin, Grewal, Leghorn, Shankar, Teerling, Thomas and Verhoef 2006: 97).
	Rigby (2011: 2) initially used the phrase "omnichannel sales" in academic literature, defining it as an "integrated sales experience."
	Brynjolfsson <i>et al.</i> (2013) mention that the omnichannel business model allows retailers to leverage synergies between two or more channels to synchronise their interactions with consumers across multiple touchpoints.
	Frazer and Stiehler (2014: 656) define omnichannel as a volatile and dynamic environment stimulated by system interoperability, parallelism and simultaneity of processes and activities.
	According to Mosquera, Pascual and Ayensa (2017: 2), an omnichannel commerce strategy ensures a coherent, well-consolidated offer for a consumer through sales, shops, catalogues, mobile devices, or social media.
	Verhoef, Kannan and Inman (2015: 175) define omnichannel as managing synergy across available channels and customer touchpoints to maximise customer experience and boost channel performance.
	According to Gibson, Defee and Ishfaq (2015: 18), omnichannel commerce is the logical and natural development of multi-channel and cross-channel tactics.
	Omnichannel is a comprehensive retailing strategy that seamlessly integrates and unifies the customer experience across all available channels. It aims to provide a cohesive and consistent journey, allowing customers to transition between channels effortlessly (Cummins, Peltier and Dixon 2016: 3).
	Omnichannel can be defined as an emerging approach to channel integration that aims to deliver a seamless customer experience through all possible channels that connect retailers and brands with shoppers and consumers while offering a continuous experience across brands, formats, channels, platforms and devices (Bell <i>et al.</i> 2018: 6 and Verhoef <i>et al.</i> 2015: 176).
	Omnichannel retailing is about being everywhere the customers are, from brick-and-mortar to online, mobile browsing and social media (Gupta 2020).
	According to Akter and Strong (2021: 568), omnichannel retail occurs when businesses plan their service delivery to cater to connected consumers. Online, mobile and in-store shopping are the three main channels companies must prepare.

In other words, omnichannel is an evolution of multi-channel retailing whereby there is no division between the physical, online and mobile stores. In an omnichannel environment, shoppers move freely among channels (online, brick-and-mortar and mobile) all within a single transaction process. Retailers use the term omnishopper to refer to a consumer who moves freely between channels. Juaneda-Ayensa, Mosquera and Sierra (2016: 2) state that because brands manage all channels together, consumers perceive their engagement as being with the brand rather than with individual channels. Irrespective of how and where a consumer makes the purchase, the consumer wants a product of the same price, quality and other related benefits. As a result, the brand or retailer can build relationships with consumers by providing them with a holistic experience during each stage of the purchasing journey (Mista 2017: 19).

For example, shoppers at Albert Heijn can utilise the 'Appie' app on their smartphones, which provides features like displaying their shopping lists and offering a personalised shopping route. This integration allows shoppers to perceive the app and the physical store as a unified shopping experience, exemplifying the concept of omnichannel shopping (van Delft 2013: 11).

Another example is when a shopper starts a shopping journey on social media, views information on a website, subscribes to a newsletter, visits a brick-and-mortar store, holds the product before completing the transaction and uses their smartphone to read reviews (cross-screen). At each stage of the consumer purchase journey, retailers and brands adjust their communication to the context and the product currently being searched. This is supported by Neslin *et al.* (2006: 99), that shoppers can explore the characteristics of a product using a mobile app, make price comparisons on several websites using a laptop and eventually purchase the product in a physical store. Later, the consumer may share opinions and experiences about the product with other shoppers and talk to the brand using social media. Hence, consumers are willing and ready to move seamlessly between channels and platforms (brick and mortar, online and mobile), all depending on the consumer's preference, current situation, time of day and product category (Costs e Silva *et al.* 2019: 1).

In addition, shoppers do more than move between each channel or platform. Shoppers use them simultaneously. For example, consumers may search for information online while searching in a physical store (Verhoef, Kannan and Inman 2015: 175). Hence, adopting an omnichannel approach integrates the in-store and social platform experience and can help mitigate some of the limitations of s-commerce and enhance customer satisfaction. This strategy allows retailers to target customers across all the channels and touchpoints and improve their shopping

experience (Swift Admin 2021). According to Konuş, Neslin and Verhoef (2014: 399), the omnichannel retail model opens customers to various integrated retailer touchpoints and channels. Therefore, throughout the shopping experience, customers can freely switch between multiple channels (online, mobile and physical stores) and the customer experience is uniform and consistent across all channels (Sesé Oliván *et al.* 2016: 20).

2.8 RATIONALE FOR THE EVOLUTION OF OMNICHANNEL RETAILING

The imperative to provide a seamless and integrated shopping experience across various channels drives the evolution to omnichannel retailing. Table 2.7 shows critical factors that led to omnichannel retailing.

Table 2.7 Factors that led to Omnichannel retailing.

Factors	Description
Consumer Expectations	Retailers provide touchpoints that blend online and offline interactions while acknowledging consumers' diverse needs and preferences. Affluent customers anticipate convenient and immersive experiences with seamless transitions between physical and digital environments (Quinn 2023). Consumers expect a unified experience across channels and omnichannel strategies focus on a customer-centric approach, integrating online and offline channels to meet these demands. Examples include Liberty and Harrods using iBeacons and QR codes to enhance the shopping experience (Joseph 2014; Insider Trends 2015). Multi-channel operations often fail to meet these expectations as they are siloed and not designed for cross-channel communication (Dhebar 2013; Peltola, Vainio and Nieminen 2015; van Vliet 2014).
Technological Advancements	Social networking, in-store technology and m-commerce are examples of technological advancements made to serve customers better. Technologies like iBeacons and RFID enable real-time stock checks and consumer engagement. The Internet of Things allows for enhanced data collection and analysis, enabling retailers to customise and price-optimize offerings for specific audiences (Piotrowicz and Cuthbertson 2014). Innovations such as interactive shelves and personalised experiences enhance customer engagement and tailor services to individual preferences (comScore 2014).
Supply Chain Optimisation	The retail evolution leverages the complementary strengths of physical and online channels, optimising supply chains for more tailored and efficient fulfilment processes (Rahman 2003).
Competitive Landscape	To stay competitive, retailers recognise the need to adapt to changing consumer behaviours and preferences, necessitating a comprehensive omnichannel strategy for survival and growth (Brynjolfsson, Hu and Rahman 2013). The omnichannel landscape has intensified competition, with traditional retail brands going online and e-retailers venturing into physical stores, such as the Amazon Go store in West London (Balakrishnan, Dhanil and Yi, 2014; Bernstein, Song and Zheng, 2008; Deloitte 2018).
Evolving Business Models	E-commerce enterprises are building offline retail channels and collaborating with brick-and-mortar stores to enrich their business models and meet the evolving demands of the market. This evolution ensures businesses remain agile, responsive to consumer needs and well-positioned in a rapidly changing market (Gestaldt Consulting Group 2023).

2.9 SIGNIFICANCE OF THE TRANSITION

The evolution from single-channel to omnichannel holds profound significance in marketing and retailing. This transformative journey has redefined how businesses engage with customers and orchestrate their operations. Even though the phrase omnichannel has become excessively

utilised, its importance has not diminished. In addition, omnichannel has changed significantly from online versus in-store purchasing to in-store pickup and trying before buying. Omnichannel retail aims to combine the shopping experience across many touchpoints and enable shoppers to move between physical and virtual retailers/businesses without experiencing any disruptions. Businesses must seamlessly connect and merge channels to create a unified customer journey, staying ahead in the competitive landscape. The goal of omnichannel retail is not to have stores everywhere but to give shoppers what they want, when and where they want it. The evolution to omnichannel retailing is not merely about presence in multiple channels but about connectivity and adaptability (Rizzo 2019). Hence, shifting from single-channel to omnichannel is a strategic imperative for businesses, offering operational efficiencies and a customer-centric paradigm that aligns with contemporary market dynamics (Bell, Gallino and Moreno 2018: 2).

2.9.1 Technologies Facilitating Omnichannel Integration—Further discussed in the next chapter

According to Asmare and Zewdie (2022: 61), retailers' decision to adapt their multi-channel approach to a fresh omnichannel strategy was primarily motivated by technological advancements, the rise of mobile technology and shifting consumer demands. Technological advancements have blurred the lines between the physical and digital environments, giving rise to omnichannel retail models in which online, offline and mobile channels work together to provide shoppers with a seamless shopping experience (Neslin 2022: 112).

2.9.2 COVID-19 and technology acceleration

The lockdown across several retail sectors dramatically shifted the focus from physical retail to online retailing. This development of online sales had already happened for two decades in multiple markets (Roggeveen and Sethuraman 2020: 169), but COVID-19 induced a substantial shift with enormous growth rates for online players like Amazon. Health prevention needs partly drove this shift in consumer behaviour. However, lockdowns forced consumers to shift their purchasing habits, from grocery shopping to webstores. Prior research has consistently shown that a sizable market segment is not searching for or purchasing products online (Konus *et al.* 2014: 400). Hence, consumers are forced to buy online to purchase the needed products. While innovative consumers were already strong users of the online channels, less creative and typically older consumers were still intensely focused on the offline channel (Kovalenko 2021: 69). A part of the latter group of consumers also started purchasing from online stores. The shift to online

purchasing and delivery is evident in retail and restaurants, where consumers have become accustomed to ordering meals through platforms like Uber Eats. Having this online experience, consumers have learnt about the benefits (convenience and assortment) and costs (price and payment risk) of online retailing and services (Verhoef, Neslin and Vroomen 2007: 133). These experiences may lead to a more permanent change in consumer needs and preferences. Consumers may, for example, demand more convenience, a more significant assortment and easier-to-use technology in physical stores. Forsythe *et al.* (2006) identify time-saving as a significant driver for online shopping.

The COVID-19 pandemic has created a shift in retailing and how consumers shop. The COVID-19 pandemic has rapidly evolved consumer preferences, behaviours and values (Ernst and Young 2020). The commercial justification for expanding hybrid fulfilment systems, which combine e-commerce and store resources, has grown due to the consumer behavioural shift to online purchasing, which COVID-19 has expedited (Lomberg 2024). While online grocery buying is convenient, experts can partly blame the pandemic's effects for the general increase in online grocery orders. More people are preparing meals at home rather than dining out, resulting in increased grocery orders. Walmart experienced all-time high sales volumes for grocery pickup and delivery during the COVID-19 pandemic. The corporation noted that the COVID-19 pandemic also affected consumers' shopping habits. Consumers now make fewer but more substantial purchases per trip to the store than they once did. Switching to online shopping resulted in a 27% increase in comparable average ticket sizes despite a 14% decline in similar transactions (Perez 2020: 1).

On the other hand, according to Statistics South Africa, retail trade sales decreased by 2.5% year-on-year. Retailers in hardware, paint, glass, general goods, pharmaceuticals, medical goods, cosmetics and toiletries recorded a negative annual growth rate. Conversely, the most significant positive contributors were retailers in textiles, clothing, footwear and leather goods. Retail trade sales increased by 0.5% in the second quarter of 2021 and the most significant positive contributors to this increase were retailers in textiles, clothing, footwear and leather goods at 3.4% (Staff Writerb 2022).

The technology has increased in popularity due to the COVID-19 pandemic, primarily because of its many safety advantages. As it enabled consumers to customise their meals, place orders and even pay without dealing with restaurant workers, self-ordering kiosks can aid restaurants to promote social alienation. For example, the New York-based juice and smoothie brand Pure

Green used a combination of QR code menus and kiosks to limit face-to-face contact in its venues and increase in-store productivity during the height of the pandemic. Some restaurants placed tablet-based kiosks outside or in the windows to simulate a drive-through experience (Pendrill 2020: 1).

The results demonstrate the widespread adoption of e-commerce and m-commerce, with customers in emerging economies switching to online purchasing. For example, Mercado Libre, a Latin American online marketplace, sold twice as many things per day in the second quarter of 2020 as in 2019. Additionally, the African e-commerce platform Jumia recorded a 50% increase in transactions in the first half of 2020. Between August 2019 and August 2020, China's online retail sales share increased from 19.4% to 24.6%. In Kazakhstan, online retail sales increased from 5% in 2019 to 9.4% in 2020. In just one week in March 2020, Thailand had a 60% increase in the downloads of shopping applications (UNCTAD 2021: 1).

Moreover, Alibaba Group, JD.com, MTDP (Meituan Dianping) and several other businesses have changed Chinese customers' buying habits over the past five years, shifting them from physical stores to online marketplaces, frequently aggregated through a super app. According to one estimate, 36.6% of retail sales in China were conducted online as of 2019 and 71% of Chinese customers had done so at some time, primarily using mobile applications (80% of e-commerce transactions). Chinese locals have been able to arrange for the delivery of vital goods to those in self-quarantine at their homes because of the convergence of consumer digital maturity and supply chains backed by digital technology (Lin 2020: 1).

Since then, consumer shopping habits have changed from initial panic purchases and hoarding to a more controlled and deliberate stock-up purchasing behaviour, as consumers buy for breakfast, lunch, dinner and snacks seven days a week. People were concerned about safety and were aware of it while shopping under the COVID-19 cloud. This situation is especially true for older people, particularly those over 70, as many were afraid to leave their homes, let alone go grocery shopping. Smith (2023) notes that shopping from home removes the necessity of visiting physical stores, saving considerable time otherwise spent commuting and parking. Consistently ranking among the factors contributing to satisfying shopping experiences are cleanliness and hygiene. People will continue to consider these aspects as they determine whether a shop is safe to enter and whether they need to visit it. Shopping habits in-store are becoming more Grab'n'Go and less browsing.

In keeping with "lockdown lives", there were many planned shopping trips. Consumers were shopping on behalf of others, whether they were family members or neighbours who could not leave the house. Demand for online shopping was significantly outpacing grocery capacity, with delivery delays of two weeks. Time risk refers to the possibility of losing time due to the need to return, repair, or replace products and issues with online transactions, such as delays or navigation challenges (Hanjun *et al.* 2004; Forsythe *et al.* 2006). Assisting consumers in finding what they were looking for, growing dependence on frictionless payment, reserving a time slot for click-and-collect and drive-through grocery store visits and robots, which made stores safer. Robots assisting customers and staff, independent trolleys, technology for shopper surveillance and intelligent vending machines are all examples of technological innovations implemented in modern retail environments (Flavin 2022: 1).

In support of this, Lawrence Wen, the regional general manager at GrabFood, stated that the pandemic had significantly altered the industry. Since the pandemic confined many individuals to their homes, businesses have accelerated the push for an omnichannel retail approach. In this environment, retailers can actively assist their partners in developing their social media presence, setting up online businesses and providing customer service. In addition, Kanmo Craig Wheeler, Group VP of Digital and Omnichannel at Retail Group, stated that COVID-19 increased their digital footprint from 1% to around 20% when considering all channels. They have introduced new websites and applications, including WhatsApp and online chat buying, which accounts for 50% of the difference. Numerous stores in Jakarta and Indonesia have reopened yet demand for omnichannel shopping has remained unchanged. They have filled the gap with websites and marketplace stores and WhatsApp purchasing has marginally declined.

Despite many nations being in lockdown, business leaders were prepared to re-adopt and expand open stores. Customers may immediately reach the team of employees in stores or through WhatsApp. Senior Vice President (SVP) of Product, Happyfresh, Carmen Opera, stated that due to COVID-19, businesses had to rethink safety and health because this became the customers' top priority. This included transitioning from cashless transactions to self-checkout systems. There has been a significant shift in consumer behaviour, with consumers worldwide favouring healthier and locally sourced goods. Therefore, in terms of client behaviour, businesses push several messaging formats across channels. Retailers and consumers have widely accepted and understood online grocery buying. This shift increased the likelihood of recognising potential trends and, from there, gaining insights into consumer behaviour. Supermarkets or partners

provided one sizeable weekly basket with a wide selection. On-demand immediate purchases were also prevalent (Indian Retailer Bureau 2021: 1).

The COVID-19 pandemic has presented difficulties for brands in the supermarket sector. The situation with HappyFresh is that of a company that offers grocery delivery services to customers in Malaysia, Indonesia and Thailand. Early in the pandemic, HappyFresh's app saw a startling 560% spike in daily active users and an 800% increase in new users, along with long checkout queues and escalating customer demands. In a video question and answer session with Jen Lee, customer success manager at Braze, Yee Lynn Chan, head of CRM at HappyFresh, said that "everyone was panicked, stocking up on goods like toilet paper, pasta and rice, so naturally people resorted to online platforms that supplied deliveries." In addition, Chan claimed it took much work to maintain the customary customer service during this time. "We saw that most people on the checkout floor could not check out. Since no slots were left then, a significant drop-off just before buyers chose the nation for delivery was noted. Thankfully, HappyFresh sought the help of Braze, a customer interaction platform that uses technology to power brand communications. Braze emphasises that context is essential because every consumer interaction is supported by a what, when and where. In the rapidly evolving world, establishing a responsive, one-to-one digital connection with users has become essential, not just a luxury. This approach is now the only way for brands to develop long-lasting relationships with their clients. HappyFresh interacts with customers through real-time updates by creating customised HTML in-app messages (IAMs) using Braze, which enables the grocery platform to communicate with customers instantly. The app asked customers if they wanted to opt in to receive email and push notifications about when deliveries were available. Chan explained, "Grocers update their slots every few hours so customers can secure a spot if they check at the right time."

Additionally, HappyFresh simplified the process of receiving the food they wanted by utilising in-app messaging to let users know when delivery slots were open. Shoppers received notifications when spaces opened in their area and opted-in users acquired priority checkout. The system saved the consumer substantial time and improved the overall customer experience by asking them to check back later if no more slots were available when they logged in (Campaign 2021: 1).

2.10 SUMMARY

In conclusion, the journey from single-channel to omnichannel retailing is a testament to the dynamic nature of the retail landscape. The literature review of this evolution has unveiled key insights into milestones, challenges and technology's transformative role. Single-channel retailing originated as a singular distribution option, constraining consumer engagement to a specific avenue, whether online, in a catalogue, or in brick-and-mortar stores. The paradigm shifts towards multi-channel retailing marked a departure from this exclusivity. Retailers blended diverse distribution channels to meet consumers' preferences and shopping behaviours, creating a more comprehensive shopping experience. The evolution continued with omnichannel retailing, representing a holistic integration of all available channels. Omnichannel promotes sales improvement by enabling businesses to secure multiple channels, providing consumers with a broader range of choices and a seamless transition between online, offline and mobile interactions.

The shift from traditional single-channel approaches to sophisticated omnichannel strategies signifies a progressive trajectory. This evolution mirrors the adaptive responses of retailers to changing consumer behaviours and market dynamics. By examining the characteristics and limitations of single-channel retailing, the researcher established the groundwork for understanding the necessity of embracing more integrated approaches. This phase catalysed the subsequent transformations. Examining the emergence of multi-channel strategies provided insights into the transitional phase, shedding light on the factors propelling the shift and the challenges encountered. This phase was a critical juncture in shaping the omnichannel landscape. A section defining omnichannel retailing, focusing on concepts like channel switching and customer experience, drew from scholarly contributions. This definition forms the cornerstone for understanding the comprehensive nature of omnichannel strategies. Exploring the intricacies of omnichannel success, particularly in structuring retail. This highlighted the importance of facilities, inventory, transportation and information flow. The analysis of post-pandemic dynamics showcased how retailers adapted omnichannel strategies for recovery. This adaptive response addressed immediate challenges and paved the way for future strategies with managerial implications.

The evolution of retailing is an ongoing narrative and understanding its dynamics is crucial for navigating the ever-changing landscape. In addition, omnichannel retailing, a key feature of Retail 4.0, allows consumers to shop through a mix of in-store, online and mobile channels rather than

limiting them to one or the other. Webrooming entails searching for the item online before purchasing in-store, whereas showrooming entails seeing the item in-store before purchasing online. To give customers the most incredible shopping experience, services and goods, Retail 4.0 uses several Industry 4.0 technologies discussed in chapter three.

CHAPTER THREE: LITERATURE REVIEW

APPLICATION OF THE FOURTH INDUSTRIAL REVOLUTION TO RETAILING

3.1 INTRODUCTION

Chapter two centres on the evolution of retailing in South Africa, from single-channel to omnichannel retailing. This chapter delves into the historical backdrop of the first three industrial revolutions, delineating the impact on societal structures and economic paradigms. The chapter includes the global context of the 4IR retailing socio-economic landscape and technology's transformative role in shaping its trajectory. The chapter scrutinises the relevance of 4IR to the retail landscape, highlighting the emergence of omnichannel shopping experiences. An overview of retail in South Africa furnishes context and succeeds by analysing the pre-4IR retail setting and its transition to the digital era. Key catalysts of change during 4IR, such as technological advancements and shifts in consumer expectations, are pivotal aspects further explored in this chapter. The examination extends to omnichannel shopper behaviour, unpacking technology's definition, characteristics and role in moulding this evolving consumer experience.

The chapter also explores the technological innovations underpinning 4IR, including artificial intelligence, augmented reality and the Internet of Things and scrutinises their impact on retail, particularly omnichannel retailing. The chapter concludes by examining the challenges and opportunities encountered by retailers in South Africa, encompassing the hurdles in adopting 4IR technologies, infrastructure constraints, skill gaps and training necessities.

3.2 HISTORICAL OVERVIEW OF INDUSTRIAL REVOLUTIONS

The industrial revolutions represent a culmination of over two centuries of heightened economic growth driven by technological advancements (Groumpos 2021: 465). Social, political and environmental factors shaped these revolutions, where technological progress remained central. Moreover, the First Industrial Revolution harnessed water and steam power to mechanise production. The Second Industrial Revolution revolutionised manufacturing with electric power, enabling mass production. The third industrial revolution advanced further with electronics and information technology, leading to automation. The Fourth Industrial Revolution builds on the digital advances of the Third, integrating technologies that merge the physical, digital and

biological realms (Schwab, 2016). Table 3.1 presents a detailed description of each industrial revolution and briefly explains its impact on retailing.

Table 3.1 Industrial Revolutions

Industry	Characterisation	Impact on Retailing
Industry 1.0 (late 1700s to early 1800s)	The first Industrial Revolution marked a transformative epoch from the late 18th to the early 20th century. Industrial Revolution 1.0 emerged in the late 18th century, introducing mechanisation and steam power and revolutionising agricultural societies into industrial powerhouses. This shift from handcrafted to mechanised production laid the foundation for urbanisation (Wrigley 2018: 10).	The advent of mass-produced goods revolutionised the retail landscape, expanding consumer access to a diverse array of products. Previously, fabric production occurred within households, with retailers providing essential materials and equipment. A decentralised approach often led to challenges in managing production schedules. However, introducing steam engines, spinning wheels and water wheels significantly enhanced productivity, catalysing the development of innovations that shaped modern industries (Mathur, Dabas and Sharma 2022: 1391).
Industry 2.0 (late 1800s to early 1900s)	The Industrial Revolution 2.0 harnessed electricity and developed mass production techniques, which characterised the late 19th and early 20th centuries. Innovations like the assembly line ushered in an era of standardised manufacturing, significantly boosting efficiency and output (Ramchander 2018: 3).	Enhanced production efficiency led to lower costs, enabling retailers to offer goods at more affordable prices, thereby expanding consumer access to products (Mathur, Dabas and Sharma 2022: 1391).
Industry 3.0 (mid-20 th century)	The rise of electronics and information technology marked Industrial Revolution 3.0. Automation, computers and telecommunications accelerated industrial processes, fostering a globalised economy. This era set the stage for the digital age, transforming the medium of societies and business communication (Thomas and Lewis 2007: 229).	Automation in retail operations, such as inventory management and checkout systems, improves efficiency and customer service, drives sales and enhances the shopping experience (Mathur, Dabas and Sharma 2022: 1392).
Industry 4.0 (the early 21 st century)	It is characterised by the fusion of physical, digital and biological technologies, leading to the Fourth Industrial Revolution and the rise of smart technologies and artificial intelligence (Hermann, Pentek and Otto 2016: 3928).	Industry 4.0 integrates IoT devices and AI-enabled analytics to revolutionise retail operations by enabling personalised marketing, predictive analytics and seamless omnichannel experiences (Kheswa 2023).

Industry 1.0 to 2.0 reshaped societies and economies. The progression from water and steam power to electricity and automation paved the way for unprecedented advancements, laying the groundwork for subsequent industrial transformations. Industry 3.0, with electronics and

technology, paved the way for Industry 4.0. The succeeding paragraphs explain Industry 4.0 in more detail (See Figure 3.1).

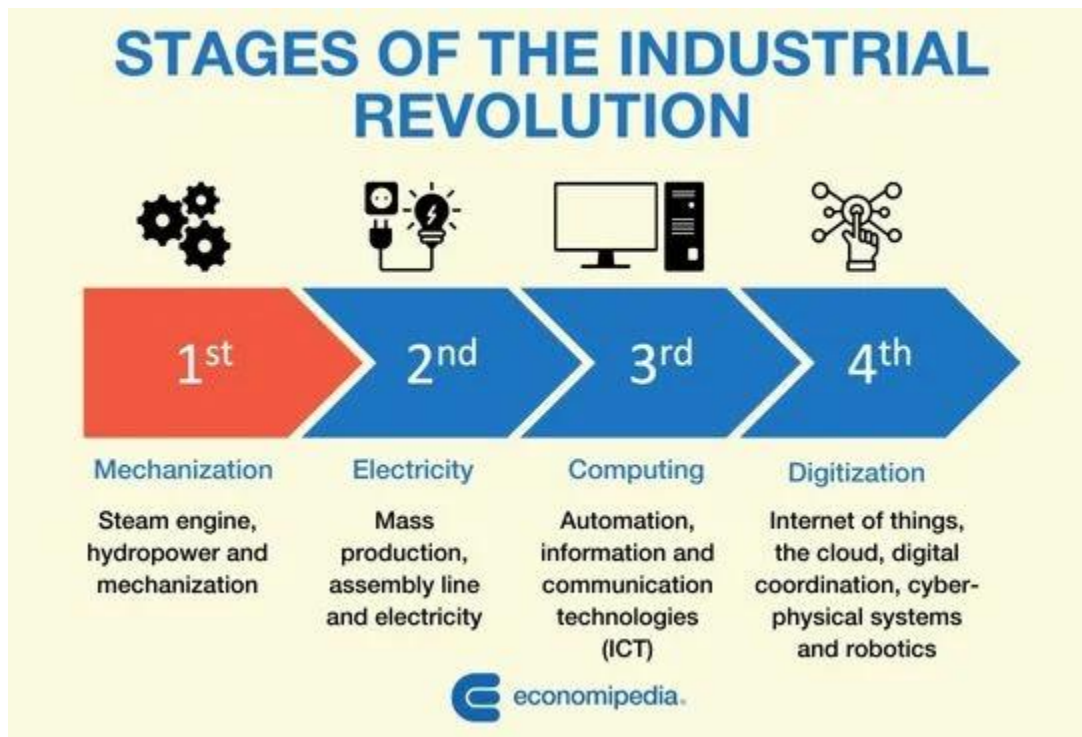


Figure 3. 1 Stages of the Industrial Revolution

(Source: Economipedia 2024).

Figure 3.1 illustrates the stages of the Industrial Revolution from Industry 1.0 to Industry 4.0 and the drivers of each Industrial Revolution, such as mechanisation, electricity, computing and digitalisation.

3.3 OVERVIEW OF THE FOURTH INDUSTRIAL REVOLUTION (4IR)

The 4IR emerged in the 21st century, creating a pivotal era in human advancement, intertwining the physical, digital and biological realms. A fusion of technologies characterises 4IR, blurring traditional boundaries and transforming people's lives and work. At its core, 4IR harnesses the power of groundbreaking innovations like artificial intelligence, robotics, the Internet of Things (IoT) and biotechnology (Schwab 2016). The interconnected landscape reshapes industries, economies and societies, fostering unprecedented efficiency, connectivity and automation. The 4IR is not just about technological advancements; it is a societal shift with profound implications. From smart cities to personalised healthcare, it redefines people's relationship with technology,

challenging existing norms and raising questions about ethics, inclusivity and the future of work (Chandler 2015: 15). As the world navigates the 4IR transformative wave, 4IR becomes a dynamic force shaping the fabric of the world's collective progress and laying the groundwork for a future where innovation and connectivity drive human evolution.

3.4 FOURTH INDUSTRIAL REVOLUTION WITHIN A GLOBAL CONTEXT

The 4IR is a transformative global narrative, reshaping societies' engagement with technology. It is a technological evolution and societal paradigm shift influencing economies, industries and individual lives worldwide. The rise of artificial intelligence, the Internet of Things and advancements in robotics and biotechnology mark the global context of 4IR with innovation and interconnectivity. Nations across the globe navigate this complex landscape, seeking to harness the potential for economic growth, improved quality of life and sustainable development. The challenges are as profound as the opportunities, with considerations for ethics, inclusivity and the impact on traditional employment patterns. In this era of 4IR, the world is at the intersection of unprecedented technological possibilities and the imperative to chart a course that ensures benefits are equitably distributed and aligned with human values (Aghoghovwia, Ismail, Mahomed-Asmail, Marivate and Steenhuisen 2021: 14).

3.5 THE FOURTH INDUSTRIAL REVOLUTION IN SOUTH AFRICA

The significance of the 4IR in South Africa is pivotal as the nation endeavours to position itself at the forefront of global technological advancements. South Africa acknowledges the need to adapt and leverage these technological shifts for sustained growth. During the COVID-19 pandemic, South Africa saw significant adoption of 4IR technologies (Ehiane, Khan, Khan and Sesa 2024: 291). The public embraced online ordering and delivery of food and medicine. AI and mobile technology were pivotal in contact tracing, symptom monitoring, outbreak detection and risk assessment (Jiang and Ryan, 2020). Employers and educational institutions relied heavily on video conferencing tools like Zoom, Google Meet and Microsoft Teams platforms. At the same time, universities and schools transitioned to online platforms such as MS Teams and Moodle. Researchers also used online platforms such as Zoom and MS Teams for conferences and meetings. Hence, the most prominent 4IR technologies during COVID-19 included AI for medical diagnosis, IoT for consumer goods and mobile applications for financial transactions, transportation and utility services; additionally, digital learning platforms, augmented and virtual reality for education and entertainment (Jegede 2021).

3.6 THE FOURTH INDUSTRIAL REVOLUTION WITHIN THE RETAIL LANDSCAPE—AN OVERVIEW

Before the 4IR, the global retail landscape was defined by traditional brick-and-mortar stores, with large shopping malls serving as central hubs for commerce and social interaction. Local and international trends primarily influenced retail operations, yet digitalisation was a minor factor. In-store experiences, advertising and word-of-mouth drove consumer choices. The advent of 4IR, characterised by integrating advanced technologies such as AI, IoT, Big Data and cloud computing, has revolutionised the retail sector globally. These technologies enable retailers to optimise supply chains, personalise customer experiences and enhance operational efficiencies. Electronic commerce (e-commerce) platforms have surged, driven by consumer demand for convenience and the ability to shop online, thus reshaping traditional retail models and fostering new business strategies (Schwab 2016).

Similarly, the South African retail landscape has evolved with the adoption of 4IR technologies, though with unique regional challenges and opportunities. Historically, South Africa's retail sector was characterised by large brick-and-mortar stores and malls, reflecting the economic and social dynamics of the time. Integrating 4IR technologies, such as AI, IoT and Big Data, transforms the sector, enhancing customer experiences and improving supply chain management. Despite the growth potential, many South African retailers, both small and medium-sized enterprises (SMEs), face significant barriers, including financial constraints and limited access to advanced technology. A study by the Wholesale and Retail SETA (W&R SETA) revealed that over 40% of retail businesses in South Africa have yet to explore 4IR technologies (Stiehler-Mulder and Mehlape 2021). Nonetheless, prominent retail chains leverage these innovations to gain competitive advantages, streamline operations and drive growth (Jegede 2021).

3.6.1 Transition to the digital era

The transition from traditional to digital retail marks a significant evolution driven by the 4IR. Initially, brick-and-mortar stores characterised retail, where consumer interactions were primarily physical. With the advent of digital technologies, the landscape shifted towards e-commerce, allowing consumers to shop online and engage with retailers. The proliferation of 4IR technologies such as AI, the Internet of Things (IoT), Big Data and Cloud Computing further accelerated this transformation, leading to the emergence of m-commerce and s-commerce (Borhauer 2018).

E-commerce platforms enable seamless shopping experiences through advanced algorithms that personalise customer interactions and optimise supply chains. M-commerce leverages mobile technologies, providing consumers the convenience of shopping through smartphones and tablets, supported by secure mobile payment systems. S-commerce integrates social media platforms with shopping functionalities, allowing consumers to discover and purchase products through social networks. These technological advancements have embedded AI-driven analytics in IoT devices for inventory management and cloud-based solutions for scalable operations within the retail ecosystem, fostering a more interconnected and efficient marketplace (Hagberg, Sundstrom and Egels-Zandén 2016: 695).

3.6.2 Key drivers of change in retail during the 4IR

The Fourth Industrial Revolution has fundamentally transformed the retail sector through key drivers that redefined its dynamics. Foremost among these drivers are technological advancements, particularly AI, the Internet of Things (IoT) and automation. AI has revolutionised customer experience personalisation and decision-making processes, while IoT has enabled real-time data exchange across interconnected devices, optimising supply chain efficiency and inventory management. Automation has streamlined operations, reduced costs and enhanced productivity. Additionally, advancements in blockchain technology have enhanced transaction security and transparency, while augmented reality (AR) and virtual reality (VR) have created immersive shopping experiences. These innovations collectively revolutionised retail, enabling seamless integration between physical and digital spaces, thus elevating the consumer experience to unprecedented levels (Schwab 2016; Yasar and Gillis 2024).

3.6.3 The role of technology in shaping omnichannel experiences

From boutique luxury stores, internet platforms and local spaza shops to hypermarkets, digital technologies have been relied upon by physical and virtual stores to provide an excellent customer experience. The infusion of advanced technologies has streamlined retail operations, enhancing efficiency and customer engagement. Machine learning algorithms analyse consumer behaviour, enabling retailers to offer personalised recommendations and targeted marketing (Botha 2019). Automation, such as cashier-less checkouts and inventory management systems, has optimised processes, reduced costs and improved overall operational effectiveness (Bouwer 2023).

Consumer expectations experienced a paradigm shift during 4IR, due to technological advancements and the creation of a digitally connected world. Shoppers demand seamless omnichannel experiences, expecting retailers to provide a cohesive journey across online, offline and mobile channels. Personalisation, sustainability and ethical practices have become integral aspects of consumer preferences, prompting retailers to adapt and innovate to meet evolving expectations (Emon and Nahid 2023: 33). For example, Nielseniq's survey showed that 30% of South African consumers indicated that their traditional shopping habits, such as grocery shopping from in-person grocery store visits, changed to online between March 2021 and 2022 (Dixit 2022).

The advent of 4IR technologies has revolutionised how retail businesses operate and engage with consumers. During the COVID-19 pandemic, South Africa witnessed a transformation in retailing and consumers' buying habits. For example, the adoption of digital technologies and applications through social media platforms (Facebook, WhatsApp, LinkedIn and YouTube) (Baig, Hall, Jenkins, Lamarre and McCarthy 2020: 4). Meanwhile, the migration of consumers to digital and omnichannel and their desire to go on holiday may be permanent. The expectation is that there will be greater use of e-commerce for shopping as different digital platforms emerge as touchpoints (Abe and Mugobo 2021: 88). Consequently, the transformative impact of 4IR on the retail sector intricately ties consumers' intention to use omnichannel to create a seamless and integrated shopping experience across various devices and channels. However, many South Africans mix online and in-store shopping. Thus, purely online and brick-and-mortar retailers are driving omnichannel retail adoption. Takealot, an online retailer, demonstrated this by opening collection hubs/stores/pick-up points, while traditional brick-and-mortar retailers like Mr Price and Woolworths are expanding their online shopping platforms (Prinsloo 2014).

Physical retail stores are shifting towards omnichannel strategies to meet changing consumer preferences and behaviours. The shift enables retailers to utilise advanced technology, reduce operational expenses and offer more flexible shopping options. Additionally, technology provides retailers with extensive data and insights to enhance suppliers' processes and operations, helping them compete with online retailers by adopting a more cost-effective operational model (Avery, Steenburgh, Deighton and Caravella 2012: 98).

In addition, shopper engagement has changed due to the widespread use of delivery services during COVID-19. New devices (barcode scanners and portable point-of-sale) facilitate payments and AI applications (chatbots and QR codes). Hence, technology plays a crucial role in shaping

omnichannel experiences by providing the infrastructure for seamless integration. From AI-driven chatbots to advanced analytics, technological applications enable retailers to unify online, mobile and offline touchpoints, offering personalised and consistent interactions (Bouwer 2023). Adopting omnichannel practices involves retailers integrating their online, offline and mobile operations to provide a unified customer experience. Successful adoption requires strategic planning, technological investments and organisational alignment to ensure consistency across all customer touchpoints. South African retailers increasingly recognise the importance of omnichannel adoption to stay competitive and meet evolving consumer expectations (Huge Connect 2025).

3.7 4IR IN OMNICHANNEL RETAIL

According to Paterson (2024),

... the omnichannel trend is accelerating through multiple channels that include mobile shopping, live shopping, social media, smart devices, augmented and virtual reality and the development of AI. There is an explosion of ways to reach, engage and sell to consumers.

AI personalises shopping by analysing data to provide tailored recommendations and optimise search results. IoT enhances connectivity between devices, offering real-time updates on product availability and interactive in-store experiences. Automation streamlines retail processes, ensuring faster checkouts and timely order fulfilment. Blockchain technology provides security and transparency in transactions, while Big Data Analytics offers insights into consumer behaviour, enabling highly personalised marketing campaigns (Prismetric 2024). These technologies collectively transform omnichannel retailing, enhancing personalisation, connectivity, efficiency, security, and customer insights, leading to a more integrated and satisfying shopping experience (Park and Yoo 2022: 1; Bohan 2024; Press 2023; Schertzer 2024). The forthcoming paragraphs will describe the 4IR components, providing a comprehensive analysis and examples to illustrate each aspect clearly.

3.7.1 Artificial Intelligence (AI)

AI has emerged as a transformative technology capable of exceeding task-specific requirements while considering cultural and demographic factors (Bringsjord, 2011: 273; Dobrev, 2012: 2;

McLean and Osei-Frimpong 2019: 29; Omohundro 2014: 304). AI encompasses three primary categories: Artificial General Intelligence (AGI), Artificial Narrow Intelligence (ANI) and Artificial Super Intelligence (ASI) (Antonov, 2011: 2; Gill, 2016: 138). While AGI remains a theoretical construct that enables autonomous goal achievement and knowledge transfer across diverse scenarios (McLean *et al.* 2021: 29), ANI includes current AI systems like voice recognition software, such as Apple's Siri, which operates through machine learning (ML) but cannot transfer knowledge (McLean *et al.* 2021: 29; Salmon *et al.* 2021: 224). In contrast, ASI represents a level of intelligence far surpassing human capabilities, with the potential to revolutionise fields such as science, creativity and social systems, profoundly influencing human existence (Cabrera-Sanchez *et al.* 2021: 2).

AI-driven technologies have demonstrated immense utility in enhancing retail operations and customer engagement. Specifically, these solutions are crucial in understanding consumer needs, offering personalised recommendations, customising shopping experiences and streamlining customer service and operational processes (Kheswa 2023). AI-powered chatbots, for instance, serve as virtual assistants capable of handling customer enquiries, providing product information and facilitating purchases. These tools leverage natural language processing to deliver personalised responses, significantly improving customer experiences while reducing the reliance on human customer service representatives. Additionally, AI-driven visual search technologies enable consumers to locate products through images rather than text, enhancing the shopping experience and fostering higher engagement levels (Følstad and Skjuve 2019).

In physical retail environments, AI-powered self-checkout systems streamline payment processes by reducing waiting times. At the same time, recommendation algorithms in online stores provide tailored product suggestions based on individual browsing behaviour and preferences. Virtual assistants further enhance the shopping journey by assisting customers in product discovery, price comparison and informed decision-making. AI also offers advanced analytical capabilities, notably in fraud detection and prevention, by analysing real-time transaction data to safeguard retailers and consumers from financial losses (Marr 2024). For example, Mathur *et al.* (2022: 1939) highlight how AI algorithms utilise customer data, including purchase history and demographics, to deliver personalised product recommendations, increasing conversion rates and customer satisfaction.

Retail innovations such as Google's virtual try-on tool, powered by generative AI, exemplify AI's capacity to enhance the online shopping experience. This tool enables customers to visualise

clothing on models of varying sizes, skin tones and ethnic backgrounds, making it a valuable feature for brands like Anthropologie and H&M (Google, 2023). Similarly, physical retail outlets like Amazon Go and Checkers Rush have adopted AI to automate checkout processes, eliminate queues and enhance operational efficiency. The Checkers Rush concept store in South Africa employs advanced AI camera technology to recognise products removed from shelves, enabling customers to make payments seamlessly as they exit the store (Stiehler-Mulder and Mehlape 2021).

Integrating AI in retail aligns with Davis's (1989: 320) technology acceptance model (TAM), which identifies perceived ease of use and usefulness as key drivers of technology adoption. For grocery items, smart shelf tags, intelligent display advertisements and personalised product suggestions allow consumers to access relevant information efficiently, improving pre-purchase evaluations. Similarly, Hair *et al.* (2019: 324) emphasise that technological innovations are most effective when they address consumer needs for convenience and accuracy. AI's role in this context is often supportive, enhancing the depth and reliability of information available to consumers (Kotler *et al.* 2019: 218). Retailers should integrate detailed comparisons and expert reviews tailored to high-involvement shoppers' decision-making processes to optimise AI's impact. Hair *et al.* (2019: 325) argue that technological solutions must seamlessly align with consumer behaviours to ensure effectiveness.

In the South African retail sector, AI adoption is accelerating as retailers seek to enhance customer engagement and operational efficiency within the country's evolving 4IR landscape. Major grocery chains such as Shoprite have implemented AI-powered demand forecasting and personalised promotions using their Sixty60 app, optimising product availability and delivery efficiency (Shoprite 2024a: 1). Woolworths leverages machine learning to refine product recommendations and target digital promotions based on customer purchase history and lifestyle segments (Woolworths 2023: 4). In fashion and homeware, TFG utilises AI-driven analytics to tailor stock assortments per store and enhance size and style recommendations for online shoppers (TFG 2024: 2). AI-enabled chatbots, such as those used by Vodacom and Takealot, handle large volumes of customer queries instantly, reducing pressure on call centres and improving responsiveness (Deloitte 2024: 6). These innovations align with the South African Reserve Bank's *Digital Payments Roadmap*, which emphasises AI's role in enabling secure, frictionless transactions in both high- and low-involvement retail contexts (SARB 2024: 54). However, while uptake is strong among leading retailers, affordability constraints and uneven digital literacy

remain barriers to widespread adoption (GSMA 2023: 13). Addressing these gaps will be crucial to ensuring that AI-driven retail benefits extend across South Africa's diverse consumer base.

AI's multifaceted applications in retail, ranging from personalised recommendations to operational automation, demonstrate its transformative potential. By addressing consumer demands for accuracy, convenience and trust, AI can significantly enhance customer satisfaction, loyalty and overall retail performance

3.7.2 Machine Learning (ML)

Machine learning (ML) is a subset of AI that focuses on developing algorithms and statistical models that enable computers to learn and improve from experience without being explicitly programmed for every task. It enables computers to identify patterns in data and make informed predictions or decisions based on that analysis. ML algorithms use large datasets to identify patterns, relationships and trends, improving their performance over time. It is used in various fields (finance, healthcare, marketing and retail) to automate tasks, make predictions and provide valuable insights (Brown 2021).

The utilisation of ML in the retail sector spans from enriching customer interactions to optimising supply chain operations amidst tight profit margins and labour expenses. ML revolutionises various aspects of retail, shaping the industry's trajectory towards innovation and enhanced customer satisfaction. Clustering techniques improve marketing strategies, while optimisation algorithms streamline supply chains. Furthermore, ML aids in fraud detection, personalises customer experiences through ranking and recommendation systems and improves decision-making processes. Hence, it is said that the future of retail lies in leveraging ML for data-driven decisions that will enhance customer experiences and operational efficiency (Anders 2024).

The following section presents insights from the comprehensive analysis, specifically on the diverse utilisation of ML in the retail sector (Weber and Schütte 2019: 3).

Table 3.2 Machine learning in the retail sector

Application	Retailer	Details
Classification	Walmart	Employs an ML system named Eden to assess the freshness of fruits and vegetables by capturing images and assisting in determining markdowns or disposal schedules (Walmart 2018).
	Carrefour	The company utilises machine learning and augmented reality in its app offerings to recognise images, thereby enriching the customer experience (Pfeiffer et al., 2019).

Prediction	German Schwarz Group (Lidl)	Integrates predictive analytics into a wine recommendation mobile app, leveraging historical user data to match wine selections with sales probabilities (Pfeiffer et al., 2019).
	Amazon	Amazon utilises ML to forecast real-time sales data, influencing inventory management and sales strategies (Forbes 2021).
Clustering	Kroger's subsidiary "84.51"	Harnesses deep learning to segment customers based on demographics and preferences, tailoring marketing approaches accordingly (84.51° 2024).
Optimisation	Walmart	Leverages data from its Eden system to optimise supply chain operations, adjusting delivery schedules based on product freshness (Walmart 2018).
	Kroger and Ocado	Collaborates to implement advanced automated warehouses, employing deep learning algorithms for efficient product handling (Ocado Group, 2024).
Anomaly Detection	Amazon	It employs deep learning for outlier analysis to identify fraudulent activities, which is crucial for upholding the integrity of its online marketplace (Amazon Web Services, 2025).
Ranking and Recommendations	Amazon	Amazon uses ML algorithms to rank product search results and enhance recommendation systems, improving the shopping experience (Stratoflow, 2023).
Additional Applications	Home Depot	Utilises deep learning to anticipate shelf-out scenarios and automate replenishment processes (The Home Depot, 2023).
	CVS Health Corporation and Aetna	Leverages ML within their analytics platform to deliver personalised healthcare services (Fang, 2023).

In the South African retail sector, ML adoption is steadily expanding as businesses seek to leverage data-driven insights to enhance competitiveness in the 4IR landscape. Large retailers such as Shoprite use ML-powered demand forecasting to optimise stock replenishment for their Sixty60 on-demand delivery service, reducing waste and improving fulfilment speed (Shoprite 2024a: 3). Woolworths employs customer segmentation algorithms to tailor digital promotions and refine loyalty programme offers based on purchase history and lifestyle preferences (Woolworths 2023: 5). In fashion retail, TFG applies predictive modelling to improve store-level inventory allocation and reduce markdown losses, while enhancing online product recommendations (TFG 2024: 7). Financial services linked to retail, such as Capitec's partnership with online merchants, use ML-based credit scoring and fraud detection to secure transactions in e-commerce environments (Deloitte 2024: 8). These initiatives are supported by broader ecosystem developments, including the SARB's *Digital Payments Roadmap*, which recognises ML's role in enabling real-time payment authentication and risk monitoring (SARB 2024: 54). However, GSMA (2023: 14) notes that the scalability of ML-driven retail innovations in South Africa is influenced by constraints in data quality, affordability, and digital skills, underscoring the need for inclusive technology deployment strategies.

3.7.3 Augmented reality (AR)

Augmented reality (AR) allows retailers to offer customers a shopping experience greatly enhanced by digital capabilities. Moreover, the kind of transformative technology applies across an omnichannel retail experience. AR enhances reality by integrating digital elements into the user's environment, creating an immersive experience (Vhatkar, Raut, Gokhale, Cheikhrouhou and Akarte 2024: 442). Retailers integrate AR technology into various consumer journey stages, spanning physical, mobile and online touchpoints (Javornik, 2016; Carmigniani, Furht, Anisetti, Ceravolo, Damiani and Ivkovic, 2011). AR revolutionises shopping by allowing customers to visualise products in their surroundings before purchasing them. Through mobile apps or AR-enabled devices, shoppers can virtually try on clothing, accessories and cosmetics, aiding informed decision-making. AR also enriches physical stores by offering interactive displays and overlays, providing additional product information and enhancing customer engagement.

Moreover, AR navigation tools guide shoppers within stores, facilitating product locations and maximising in-store promotions. Interactive AR catalogues and advertisements elevate consumer engagement, allowing users to scan images for extra content or promotions (Fingent 2024). McLean *et al.* (2021) found that image-based shopping generated moderate consumer engagement, highlighting the increasing use of visual search and image recognition technologies in e-commerce. These advancements reshape how consumers interact and discover products online (Subramanian 2023). Omnichannel shops can access additional sales and marketing channels, such as virtual try-ons (CB Insights 2021). These applications transform the shopping journey, delivering a visually captivating and informative experience and fostering stronger connections with products and brands (Fan, Chai, Deng and Dong 2020: 101986). Global retailers like IKEA, Walmart and Amazon have created AR apps to enhance retail operations. Some advanced AR wearables also provide shoppers with hands-free, responsive and interactive experiences. Despite these advancements, retailers and industry professionals need to be aware of augmented retail's prospects. The need for more clarity regarding its impact on business performance and consumer adoption has recently sparked increased research interest in this area (Riar, Korbel, Xi, Zarnekow and Hamari 2021: 638). For instance, Nike's "Nike Fit" tool scans users' feet to ensure the perfect shoe fit, whether purchasing in-store or online. This tool also benefits omnichannel retailers by providing additional sales channels, such as virtual try-ons (Yalcinkaya 2019). Augmented Reality (AR) technology enables customers to try on clothing or preview products without physical interaction. Although South Africa has yet to achieve the level

of AR sophistication seen in international malls, such as those in Dubai or the United Kingdom, the adoption of this trend is gradually gaining momentum (Mohamed 2024).

In South Africa, AR adoption in retail is still emerging but has shown promising application across fashion, beauty, automotive, and property sectors. Woolworths has piloted AR-enabled catalogues that allow customers to scan pages and view interactive product information using their mobile app, enhancing engagement and driving online-offline integration (Woolworths 2023: 12). Mr Price Home has experimented with AR room-planning tools, enabling customers to visualise furniture in their own spaces before purchase (Mr Price Group 2023: 9). In the automotive sector, BMW South Africa has incorporated AR car-visualisation tools into its online platforms, allowing prospective buyers to explore interior and exterior features in detail without visiting a showroom (BMW South Africa 2023: 4). Mall developers, such as Sandton City, have introduced AR treasure hunts and interactive wayfinding during seasonal campaigns to boost foot traffic and shopper dwell time (Liberty Two Degrees 2023: 15). These initiatives align with global omnichannel trends by merging experiential engagement with transactional convenience, but scalability remains constrained by consumer device compatibility, mobile data costs, and uneven digital literacy (GSMA 2023: 14). As smartphone penetration and 5G coverage continue to expand, AR is likely to play an increasingly significant role in South African omnichannel retail, particularly for high-involvement categories where visualisation can mitigate perceived purchase risk.

3.7.4 Virtual Reality (VR)

Virtual reality (VR) in retail uses VR hardware and software to create an immersive shopping experience for customers. VR allows customers to interact with products and stores virtually as if they were physically present. In contrast to AR, VR uses a wearable device, typically a headset, which blocks out sensory stimuli from the real world. This approach creates a more captivating and innovative shopping experience by immersing users in virtual, entertaining 3-D environments. Within these virtual realms, users can engage in real-time interactions and physically navigate the virtual space, typically by moving the head and through limb motion tracking (Pantano 2015; Dad, Barry and Rehman 2016; Sherman and Craig 2002; Fuchs, Moreau and Guitton 2011; Whyte 2002). In other words, virtual reality refers to substituting the perceived reality (Boyd and Koles 2019).

One notable application of VR in retail is virtual showrooms, where retailers showcase their product collections interactively and engagingly. This approach is particularly beneficial for the furniture and home decor industries, allowing customers to virtually arrange and customise items before purchasing them (Bonetti, Warnaby and Quinn 2019: 4). In conjunction, shoppers can use VR in their shopping journeys with VR headsets or compatible devices. VR applications or platforms are what retailers develop to enable users to immerse themselves in a virtual shopping environment. Through VR, customers can try out products, explore different variations and experience a level of interactivity not possible through traditional online shopping (Farah, Ramadan and Harb 2019: 136). However, retailers use VR for in-store simulations or demonstrations in physical stores. For example, clothing retailers may use VR to let customers virtually "try on" outfits or accessories without physically changing clothes. This approach enhances the shopping experience and offers consumers a unique way to interact with products (Mann, Liu-Thompkins, Watson and Papelis 2015). Another tool, showrooming, refers to personally visiting a store to inspect a product but subsequently buying it from an online retailer offering a lower price. This practice often involves using a smartphone to compare prices while still in the physical store. Conversely, webrooming represents the inverse of showrooming. It involves researching products online and visiting a physical store to finalise the purchase. Thus, Webrooming enables customers to gain a more comprehensive understanding of the product and assess it firsthand before committing to a purchase decision (Singh 2023).

Vrechopoulos, Keefe, Doukidis and Siomkos (2004) proposed that the layout of a virtual grocery store significantly influences online consumer behaviour. However, conventional predictions based on retail store layout theories only sometimes apply in virtual settings, as consumers can directly access any area of the virtual store. As a result, more user-friendly virtual shopping interfaces could further influence online buying behaviours. This idea aligns with Ballantine's (2005: 462) discovery that the level of interactivity and information provided by online shopping environments through virtual interfaces strongly influences consumer satisfaction and shapes online consumer behaviour.

Studies examining consumer behaviour in VR retailing revealed that online contexts disclose where VR applications allow shoppers to interact with products, such as apparel and enhance the hedonic value of the shopping experience (Kim and Forsythe 2008). Additionally, information agents, such as avatars, positively affect consumer behaviour, mainly when static information on the website is limited (Sivaramakrishnan, Wan and Tang 2007). Contrary to this, Vrechopoulos,

Apostolou and Koutsouris (2009) suggest that VR layout does not significantly impact behaviour, with consumers primarily visiting virtual worlds for entertainment and socialising purposes.

Interestingly, Blockbuster, the entertainment giant, pioneered embracing VR technology to simulate a virtual warehouse (Batiz 2001). Oreo employed VR technology as a promotional tool for its cupcake-flavoured cookies, transporting consumers into an enchanting fantasy realm with milk rivers and chocolate canyons (Smiley 2016). In 2014, during the introduction of the XC90 model SUV, Volvo aimed at its demographic seeking its inaugural luxury vehicle purchase. To achieve this goal, Volvo initiated a VR test-drive experience utilising a head-mounted display (HMD) (Gajsek 2017). Similarly, in 2016, Qantas Airlines introduced an entertainment service utilising Samsung's Gear VR. This service provided premium passengers in First Lounges at Sydney and Melbourne airports and those in First Class cabins on selected A380 flights from Australia to Los Angeles with an immersive virtual experience. The HMD device highlighted various airline network destinations and the latest Qantas products and featured popular in-flight movies (Cowan 2015). Virtual reality also has applications in the real estate industry. Sherry FitzGerald, Ireland's leading estate agency, used Samsung Gear VR headsets to offer potential clients the opportunity to virtually tour houses yet to be constructed, streamlining the house-hunting process (Buttons 2016).

Similarly, within the retail sportswear sector, Adidas launched a VR experience in 2017 that allowed customers to accompany climbers on their ascents. This immersive technology enabled Adidas to replicate outdoor sports experiences and provide comprehensive information about Adidas TERREX products (Takle 2017). Furthermore, the fashion retailer Topshop provided customers with a unique chance to experience a Topshop catwalk show through HMDs as part of its brand promotion strategy. Additionally, in 2017, Topshop engaged shoppers through Oculus Rift headsets, inviting them to virtually ride a waterslide through a 3D recreation of London's Oxford Street and into the physical store, marking the beginning of the summer season (Melnick 2017).

In parallel with AR adoption, Virtual Reality (VR) technologies are beginning to find a foothold in South African retail, offering immersive, fully simulated environments that enhance brand storytelling and experiential marketing. High-end automotive brands such as BMW South Africa have used VR showrooms to allow customers to explore and customise vehicles virtually, bridging the gap between online research and dealership visits (BMW South Africa, 2023: 4). Similarly, mall developers like Mall of Africa have piloted VR experiences in pop-up installations to

showcase new store concepts and seasonal campaigns (Attacq 2023: 15). Fashion retailers, including Woolworths, have experimented with VR-based fashion shows and immersive catalogue browsing during product launches (Woolworths 2023: 7), while the tourism-retail crossover sector, such as Cape Union Mart, has integrated VR travel experiences in flagship stores to complement product sales (Cape Union Mart 2024: 3). These deployments align with global 4IR retail trends but remain largely event-based or promotional due to high infrastructure costs and limited consumer access to VR hardware (Deloitte 2024: 10). Nonetheless, as headset affordability improves and mobile-based VR solutions expand, VR has the potential to become a more mainstream omnichannel engagement tool in South Africa, particularly for high-involvement purchases that benefit from immersive product exploration.

3.7.5 Internet of Things

The Internet of Things (IoT) technologies continue to proliferate, enhancing smart retail solutions like smart shelves, digital displays, and personalised customer interactions (Kheswa 2023 and Chen, Xu, Liu, Hu, Wang 2014: 349). IoT has transformed the retail industry by connecting physical objects and devices to the internet, creating interconnected systems that enhance various retail operations and the shopping experience. IoT is employed in inventory management, enabling real-time tracking and monitoring of products throughout the supply chain. Radio frequency identification (RFID) tags and sensors attached to merchandise help retailers optimise stock levels, reduce shrinkage and ensure that popular items are consistently available for customers. These technologies contribute to more efficient and accurate inventory management practices (Hossain, Chisty, Hargrove and Amin 2021: 76).

IoT enhances the shopping journey by providing personalised, context-aware experiences for shoppers. Smart shopping carts with IoT sensors can assist customers by guiding them to specific products, offering real-time promotions and even providing detailed product information. IoT-enabled mobile apps can send personalised notifications or discounts based on a shopper's location within the store, creating a more tailored and engaging experience (Kaur, Santhoshkumar, Nomani, Sharm, Maroor and Dhiman 2022: 27). Additionally, IoT is instrumental in the development of smart fitting rooms. RFID-tagged clothing items can be identified when they are brought into the fitting room. RFID tags allow customers to receive recommendations for complementary items, alternative sizes, or styling suggestions through interactive mirrors or displays. These features enhance the shopping experience by providing personalised options. (Khan, Shahid, Mansoor, Shafique, Khan and Khan 2019: 2).

An essential smart shelf comprises three key components: an RFID tag, an RFID reader and an antenna. Smart shelf tags can update information for customers. RFID tags have electronic paper (e-paper) displays or digital screens that can dynamically change to show various product information on the shelf. This information can include product prices, promotions, availability, expiration dates, or even personalised messages. By updating in real-time, smart shelf tags provide customers with accurate and up-to-date information, enhancing their shopping experience and aiding their decision-making process (Gao and Su 2017: 2479).

Concerning in-home shopping, IoT-enabled devices like smart refrigerators can generate shopping lists based on product usage and expiration dates and consumers can then conveniently order groceries online. Delivery services also benefit from IoT, as real-time tracking and monitoring of shipments enhance the visibility of the entire supply chain (Khan, Shahid, Mansoor, Shafique, Khan and Khan 2019: 2). Smart store technology encompasses a variety of innovations, including roaming robots, automated inventory tracking and checkout-free point-of-sale systems. These advancements aim to enhance the shopping experience by minimising inconveniences. Smart shelf technology gained widespread adoption in the retail industry with the introduction by Kroger, a supermarket chain (Digiteum 2024). In one instance, AWM's SmartShelf integrates edge displays and advanced optical sensors to exhibit product details and pricing while transmitting inventory data. It can also identify demographic information like age, gender and ethnicity to tailor display content. Major retail partners utilise this technology, including Walmart, Hershey and Frito Lay (Built In 2022).

Another application, by Caper, introduces a smart self-checkout cart using Amazon Go's technology. Shoppers can scan items, place them in the cart and pay directly, eliminating the need for apps, cash transactions, or waiting in queues. Plexure employs AI to deliver personalised messages, orders, payments and loyalty programmes on mobile devices, leveraging customer data effectively (TechCrunch 2019; Microsoft 2019). Interestingly, Kontakt developed IoT-enabled beacons for tracking movement, monitoring environmental conditions and enhancing customer engagement in retail settings, such as shelves and ceilings, offering location-based services (Thomas 2024).

Cash-less checkout encompasses a suite of technological innovations, including smart cameras, shelf sensors and AI. AI facilitates an autonomous shopping experience where customers can seamlessly pick up items and exit the store without traditional cashier interactions. This technology manifests in three primary formats, namely:

- Mobile-based checkout refers to customers using smartphones to scan and pay for selected products, akin to Sam's Club's Scan & Go feature (Sam's Club, n.d.).
- Self-checkout carts are notably exemplified by the Amazon Dash Cart, where shoppers utilise smart shopping carts that automatically register and charge for items placed within, streamlining the checkout process (Amazon, 2022).
- Integrated AI Systems is a fusion of smart cameras, shelf sensors and AI, pioneered by companies like Grab&go and Standard Cognition. This approach enables customers to grab products, exit the store and charge automatically without conventional checkout procedures (Grabango, 2023; Standard AI, 2023).

The allure of cashier-less checkout lies in its ability to mirror the convenience of online shopping, offering a rapid sales process and fostering a superior omnichannel shopping experience, regardless of the digital or physical retail domain. With its Amazon Go stores, major players like Amazon leverage advanced technologies such as cameras and shelf sensors to seamlessly track customer-selected items, automatically charging them upon store departure (CB Insights 2021).

Omnichannel retailing integrates self-service kiosks seamlessly into the shopping experience, creating a unified and cohesive consumer journey across various channels. In this model, self-service kiosks provide consistency and continuity throughout the customer's shopping journey. Store customers often carry smartphones, tablets, or other internet-connected devices, which form part of the IoT setup managed and utilised by shoppers. These smart devices allow customers to check store performance, search for items, access customer assistance, find deals, or complete other shopping tasks (1life 2018 and Hossain, Chisty, Hargrove and Amin 2021: 76). Malinga (2023), along with earlier research by Stiehler-Mulder and Mehlape (2021) and Jegede (2021), highlights a growing preference for greater convenience and minimal human interaction.

In South Africa, IoT adoption in retail is accelerating, driven by the country's expanding mobile penetration, 5G rollout, and the need for operational efficiency amid infrastructure challenges. Leading grocery chains, such as Pick n Pay and Shoprite, have introduced IoT-enabled smart refrigeration and temperature monitoring systems to ensure cold-chain compliance and reduce wastage, particularly important during load-shedding periods (Pick n Pay 2023: 42; Shoprite, 2024: 18). Woolworths has piloted RFID-based inventory tracking to improve stock accuracy and enable faster replenishment, integrating these systems into both in-store and online fulfilment processes (Woolworths 2023: 15). In the quick-service restaurant sector, Nando's South Africa uses IoT-linked kitchen equipment for predictive maintenance, reducing downtime and enhancing

food consistency (Nando's 2023: 9). Mall operators, including Liberty Two Degrees, have deployed IoT-enabled smart parking and environmental monitoring systems to improve shopper convenience and optimise energy usage (Liberty Two Degrees 2023: 22). However, local IoT expansion is constrained by affordability barriers, uneven digital literacy, and the high capital costs of implementation (GSMA 2023: 14). Despite these limitations, the convergence of IoT with mobile commerce and AI-powered analytics is creating a foundation for more personalised, data-driven retail experiences tailored to South Africa's unique consumer and infrastructural landscape.

3.7.6 Advanced Analytics

Advanced analytics involves extensively analysing large datasets to uncover patterns, trends and correlations. Retailers use these insights to make informed decisions regarding inventory management, pricing strategies and marketing campaigns. For instance, predictive analytics can help forecast demand, allowing retailers to optimise stock levels and minimise excess inventory, leading to improved efficiency and reduced costs (Deloitte 2017: 8). Moreover, advanced analytics is instrumental in understanding customer behaviour and preferences. Retailers can analyse purchase history, browsing patterns and demographic information to create targeted marketing campaigns and personalised promotions.

This personal approach enhances customer engagement and loyalty, as shoppers receive offers that align with their preferences and needs. Big data analytics in retail can influence purchasing behaviour by leveraging consumer data. For instance, if a shopper consistently buys a specific product during each visit, the store's app could use data analytics to identify this pattern and prompt the shopper to purchase the item again, encouraging repeat purchases. Moreover, retailers can collaborate with consumer-packaged-goods marketers to share these insights and create targeted promotions, such as offering personalised coupons to encourage customers to try the latest brands or complementary products. It is important to note that connected packaging enables auto-replenishment, enhancing convenience for consumers by automatically restocking items when needed (Renno 2024).

On the other hand, shoppers benefit from advanced analytics through a more tailored and relevant shopping experience. For example, online retailers use recommendation engines powered by advanced analytics to suggest products based on a customer's past purchases or browsing history. These personalised recommendations create a more efficient shopping journey, saving time for the consumer and increasing the likelihood of discovering items of interest (Niale 2023).

Retailers may use advanced analytics to optimise the layout and design of a physical store, ensuring a more intuitive and enjoyable shopping experience. For instance, a retail heatmap is essential for retailers as it offers valuable insights into customer behaviour within the store. This tool thoroughly understands foot traffic and product engagement by monitoring and analysing how customers move around and interact with products. This data is crucial in improving store analytics, refining product positioning and boosting sales. The retail heatmap is particularly effective in identifying areas with high and low customer activity, enabling retailers to make informed decisions about store layout and design. By optimising these elements, retailers can enhance the overall customer experience and shape their retail strategy more effectively (Jehanne 2024).

In South Africa, advanced analytics is increasingly shaping competitive advantage in the retail sector, driven by high smartphone penetration and the rapid growth of e-commerce platforms. Retailers such as Shoprite, Woolworths, and Pick n Pay are leveraging big data analytics to refine pricing strategies, optimise inventory, and deliver hyper-personalised promotions (Shoprite 2024: 22; Woolworths 2023: 30; Pick n Pay 2023: 44). Shoprite's Xtra Savings loyalty programme integrates transactional and behavioural data to target offers at specific customer segments, boosting redemption rates and customer retention (Shoprite 2024: 48). Woolworths applies predictive modelling to enhance demand forecasting, particularly in fresh produce categories, reducing wastage and improving stock availability (Woolworths 2023: 31). Pick n Pay utilises location-based analytics to tailor promotions for specific catchment areas, aligning product assortments and marketing with local preferences (Pick n Pay 2023: 46). Online retailers like Takealot employ recommendation algorithms and A/B testing to refine product recommendations and enhance user experience (Takealot 2023: 12). Despite these advancements, challenges remain in integrating analytics across omnichannel touchpoints, with data silos, skills shortages, and inconsistent digital literacy among both staff and consumers limiting full-scale adoption (GSMA 2023: 14). Nonetheless, the convergence of advanced analytics with AI and IoT is laying the groundwork for a more data-driven, customer-centric retail ecosystem in South Africa.

3.7.7 Applied robotics

Applied robotics in retailing involves using robotic systems to perform various tasks, enhancing operational efficiency and improving the shopping experience (Gratton 2024: 6). In retail, robots are deployed for inventory management, restocking shelves and assisting customers. For instance, robots with computer vision can navigate aisles to monitor stock levels, identify

misplaced items and provide real-time data to retailers. These capabilities help maintain accurate inventory, reduce stockouts and improve the supply chain management process (Baldwin 2019: 154).

On the other hand, shoppers can benefit from applied robotics in several ways during their shopping journey. For example, robotic devices can guide customers to specific products or sections within a store. These robots may have interactive screens that allow shoppers to capture their preferences or search for items, providing directions and information about product availability (Gratton 2024: 8).



Figure 3. 2 Customer-facing applications

Source: (Gratton 2024: 8).

The use of applied robotics includes tasks like automated checkout. Retailers can implement robotic systems that allow customers to scan items as they shop and complete the payment process without traditional checkout counters. This streamlines checkout and reduces waiting times, creating a more efficient and convenient shopping experience. Additionally, some retailers explore the store using customer service robots that can answer basic enquiries, provide product

information, or help in multiple languages. These robots create a more interactive and engaging shopping environment, enhancing customer satisfaction (Yao, Hu and Zhou 2023: 198).

In South Africa, IoT adoption in retail is accelerating, driven by the country's expanding mobile penetration, 5G rollout, and the need for operational efficiency amid infrastructure challenges. Woolworths has piloted RFID-based inventory tracking to improve stock accuracy and enable faster replenishment, integrating these systems into both in-store and online fulfilment processes (Woolworths, 2023: 15). In the quick-service restaurant sector, Nando's South Africa uses IoT-linked kitchen equipment for predictive maintenance, reducing downtime and enhancing food consistency (Nando's 2023: 9). Mall operators, including Liberty Two Degrees, have deployed IoT-enabled smart parking and environmental monitoring systems to improve shopper convenience and optimise energy usage (Liberty Two Degrees 2023: 22). However, local IoT expansion is constrained by affordability barriers, uneven digital literacy, and the high capital costs of implementation (GSMA 2023: 14). Despite these limitations, the convergence of IoT with mobile commerce and AI-powered analytics is creating a foundation for more personalised, data-driven retail experiences tailored to South Africa's unique consumer and infrastructural landscape.

3.7.8 Cloud computing

Cloud computing has become an integral component of the retail industry, offering a range of applications and benefits to retailers and shoppers. Retailers use cloud computing for various purposes, such as data storage, processing and analysis. Retailers leverage cloud-based platforms to store and manage data, including customer information, inventory details and transaction records. This approach allows for scalable and flexible data storage, enabling retailers to adapt to changing needs and seamlessly expand their operations (Liew, Rana, Hameed and Safavi 2023: 500).

Shoppers also benefit from cloud computing during their shopping journey. Cloud-based applications and services enable seamless and consistent experiences across various devices. For instance, a shopper can start browsing products on a mobile device, scan a QR Code, continue on a desktop computer and finalise the purchase using a tablet. Cloud computing ensures the shopper's data and preferences are synchronised, providing a unified and personalised experience. In this process, IoT facilitates information access through QR code scanning, while cloud computing securely stores data, enabling smooth navigation across mobile applications and websites (Liew, Rana, Hameed and Safavi 2023: 500). Hence, approximately

79% of customers anticipate uniform engagement across various platforms, while 80% regard a brand's encounter as equivalent in significance to its offerings (Bizcommunity 2023).

Moreover, cloud-based services empower online shopping platforms by ensuring a reliable and scalable infrastructure for e-commerce websites. Shoppers can access these platforms from anywhere, browse a wide range of products and enjoy features like personalised recommendations based on their previous purchases or browsing histories. Additionally, cloud computing supports innovative technologies such as AR and VR in retail applications. These technologies enhance the online shopping experience by allowing shoppers to try on clothing virtually or visualise products in their own spaces (Shankar, Douglass, Hennessey, Kalyanam, Setia, Golmohammadi, Tirunillai, Bull and Waddoups 2020: 1). Therefore, cloud computing is crucial to modern retail, because it supports data management, analytics and seamless, personalised experiences for retailers and shoppers. The versatility and scalability contribute to the efficiency and innovation of the retail industry.

In South Africa, cloud computing adoption in retail is accelerating as businesses seek agility, scalability, and cost efficiency to compete in a rapidly digitising marketplace. Large retail chains such as Woolworths, Shoprite, and Pick n Pay have implemented cloud-based platforms to enhance data analytics, streamline supply chains, and improve customer experiences through omnichannel integration (Flischman2022; Smith 2020). For instance, Shoprite leverages Microsoft Azure's cloud infrastructure to support real-time inventory tracking and personalised promotions, enabling a unified shopping experience across physical and digital channels (Newsroom, 2023). Similarly, Pick n Pay has migrated core operations to cloud platforms to optimise loyalty programmes and mobile payment services, improving engagement through targeted campaigns and faster service delivery (Daniel, 2023). Cloud computing also underpins the growth of e-commerce in South Africa by providing secure, scalable infrastructure for platforms like Takealot and Checkers Sixty60, ensuring reliable uptime during peak shopping periods. However, retailers face challenges related to data security, compliance with the Protection of Personal Information Act (POPIA), and the high cost of skilled cloud professionals, which can slow adoption in smaller businesses (Chimboza and Smith 2024: 47). Despite these obstacles, the integration of cloud services in South African retail continues to expand, driven by the need for operational resilience, enhanced customer engagement, and competitive differentiation in an increasingly digital economy.

3.7.9 Cybersecurity

The retail industry holds a wealth of customer information, making it an attractive target for cybercriminals to exploit or sell sensitive data. Breaches in data security can lead to significant financial losses and severely damage a retailer's reputation. Therefore, safeguarding client data is crucial (Radanliev 2023: 42). Hence, cybersecurity is paramount in the retail sector to protect sensitive information, customer data and secure transactions. Retailers employ various cybersecurity measures to mitigate the risks of cyber threats and enhance the overall security of their operations. Retailers also implement robust firewalls and intrusion detection systems to prevent unauthorised network access. Regular security audits and vulnerability assessments help identify and address potential weaknesses in the IT infrastructure, minimising the risk of data breaches (Gouveia and São Mamede 2022: 671). Research by Horton (1976), Derbaix (1983: 20) and Sweeney *et al.* (1999) describes financial risk as the likelihood of monetary loss, encompassing the misuse of credit card information. Similarly, Maignan and Lukas (1997) identified consumers' hesitation to share credit card details online as a significant obstacle to e-commerce adoption. Arango *et al.* (2015: 56) discovered that consumers frequently opt for credit or debit cards for these transactions because of their perceived dependability and convenience.

Similarly, Jonker (2019: 34) corroborated that cards are preferred for purchasing durable electronics, as they offer a seamless and secure payment experience. Hence, cybersecurity is crucial in ensuring shoppers' safe and secure online shopping experience. Secure online transactions are facilitated through encryption technologies, making it safer for shoppers to provide payment information. Recognising secure websites, indicated by "https" in the URL and a padlock icon, assures shoppers that data is being transmitted securely (Fastercapital 2024). According to Fortinet.com 2024, 24% of cyberattacks target retailers. Thus, retailers must educate customers about cybersecurity best practices often, emphasise the importance of updating software, using antivirus programmes and being cautious about phishing attempts. Thereby, shoppers can play an active role in cybersecurity by staying informed about the latest threats and taking steps to protect their devices and personal information.

Moreover, according to Imam (2024), shoppers are advised to use strong, unique passwords for their accounts and enable two-factor authentication when available. Such action adds an extra layer of security, reducing the risk of unauthorised access to personal information. Therefore, cybersecurity is a critical aspect of retail operations, ensuring the protection of both retailers and shoppers from cyber threats. Retailers invest in advanced security measures to create a secure

online environment, and shoppers can contribute to their safety by adopting good cybersecurity practices. Tanadi, Samadi and Gharleghi (2015: 228) stress that sharing personal information online often makes consumers anxious and exposed. Similarly, Featherman and Pavlou (2003) highlight that perceived risks, especially those related to privacy and security, remain significant obstacles to conducting online financial transactions. Kesharwani and Singh Bisht (2012) point out that worries about data accuracy and the possibility of unauthorised alterations can affect how reliable online transactions are perceived.

In the South African retail sector, cybersecurity has become an increasingly urgent priority due to rising incidents of data breaches, phishing scams and ransomware attacks targeting both e-commerce and brick-and-mortar retailers. According to KPMG (2023: 14), South African retailers face heightened exposure because of rapid digital transformation combined with legacy IT systems, which often lack adequate patching and endpoint protection. The 2024 Mimecast State of Email Security Report found that 78% of South African retail businesses experienced an increase in email-based attacks in the past year, with credential harvesting and payment fraud being the most common threats (Mimecast 2024: 9). The Checkers Sixty60 platform, for example, has invested heavily in multi-factor authentication, encryption protocols and continuous monitoring to safeguard customer data against cyber intrusion (Fraser 2024). Retailers are also adopting the Protection of Personal Information Act (POPIA) compliance frameworks, which impose strict requirements for the lawful processing, storage and destruction of personal data (Retail Capital 2024). Furthermore, cybersecurity training for frontline retail staff has emerged as a critical measure, as human error remains a leading cause of security incidents (ISACA South Africa 2023: 6). These proactive measures are essential to maintaining customer trust and ensuring secure digital payment environments in a market where cybercrime costs the economy over R2.2 billion annually (SABRIC 2023: 3).

3.7.10 Digital payments

Digital payments are another 4IR component and have become universal, offering convenient and secure online, mobile and in-store transactions. Digital payments have revolutionised the retail industry by providing convenient and safe alternatives to traditional cash transactions. In retailing, digital payments encompass various electronic methods, including credit/debit cards, mobile wallets and online payment platforms, facilitating seamless transactions for retailers and shoppers. Popular digital payment platforms like PayPal, Apple Pay and Google Pay offer

additional convenience by allowing users to link their accounts and make purchases with a single click (Ecentric Payment Systems 2023).

Retailers integrate digital payment systems into their point-of-sale (POS) systems, allowing customers to make purchases using credit or debit cards. Contactless payment methods, such as near-field communication (NFC) technology, enable quick and secure transactions by allowing customers to tap or wave a card or mobile device near the POS terminal. These methods enhance the shopping experience by reducing wait times at checkout and streamlining the payment process (Putri, Rahadi and Murtaqi 2017: 32). Rahaman *et al.* (2020) and Solat (2017) found that robust encryption protocols and safe payment gateways contribute significantly to the perceived safety of online transactions. Gordon and Loeb (2002) highlight that cybersecurity investments, such as antivirus software, significantly reduce the likelihood of data breaches and financial fraud. Additionally, Tsai *et al.* (2011) argue that the presence of security measures, including antivirus programmes, increases consumer trust in digital platforms and reduces perceived transaction risks.

On the other hand, online retailers utilise digital payment gateways to accept payments for commerce transactions. These gateways securely process credit card information and other payment details, ensuring the confidentiality of sensitive data during online purchases (Khando, Islam and Gao 2023: 2). Tsai and Yeh (2010) reported that perceived risks associated with information security and privacy could deter consumers from entering sensitive financial information online. Adopting digital payments brings convenience and flexibility to customers' shopping journeys. Mobile wallets and payment apps enable users to store multiple payment methods in one place, simplifying the checkout process. Additionally, digital payment solutions often come with loyalty programmes, discounts and rewards, incentivising shoppers to use these methods for transactions. Shoppers can enhance their digital payment experience using payment providers' security features. For example, two-factor authentication should be set up, transaction activity should be regularly monitored, and secure networks for online payments should be used (Beldad, De Jong and Steehouder 2010). Buyers contribute to a safer and more efficient shopping journey by choosing reputable and secure digital payment platforms. Hence, Garbarino and Strahilevitz (2004) highlight that concerns about disclosing personal information remain a significant issue for consumers, especially in regions like South Africa, where financial data safety, such as PINs and passwords, is frequently questioned. Kim, Ferrin and Rao (2008) assert that perceived security is crucial in building consumer trust and encouraging participation in mobile commerce. Kukar-Kinney and Close (2010: 244) contend that consumers often resist sharing

personal credentials online due to doubts about retailer trustworthiness and fears of data misuse. Such privacy concerns frequently result in abandoned transactions at checkout, underscoring the delicate nature of consumer trust in specific online contexts. Additionally, Malhotra, Kim and Agarwal (2004) emphasise that information privacy is pivotal to influencing consumer behaviour in digital marketplaces, indicating that perceived security does not always equate to genuine trust.

In South Africa, digital payment adoption in retail has accelerated in recent years, driven by increased smartphone penetration, improved mobile internet access, and the growing influence of fintech innovations (BankservAfrica 2023: 4). Retailers have increasingly integrated mobile money solutions such as SnapScan, Zapper, and Masterpass to cater to consumers seeking fast, contactless transactions (Payments Association of South Africa 2022: 15). According to PwC (2023: 18), the COVID-19 pandemic acted as a catalyst for digital payment uptake in physical retail stores, with many consumers opting for QR code-based payments and tap-and-go card transactions to minimise physical contact. Notably, mobile wallet usage has gained traction in township and informal retail sectors, where platforms like Kazang Pay enable secure transactions for micro-retailers and spaza shops (GSMA 2022: 11). South African retailers are also exploring digital payment integration with loyalty programmes, enabling customers to earn and redeem rewards directly through mobile apps (Deloitte 2023: 23). However, challenges remain, including consumer concerns over transaction fees, intermittent connectivity, and the persistent trust gap regarding the security of digital platforms (FinMark Trust 2021: 7). Addressing these barriers is essential to fully unlocking the potential of digital payments in South Africa's omnichannel retail environment.

3.7.11 Deliveries

Retailers must carefully evaluate emerging technologies, such as drone deliveries and virtual and augmented reality (VR and AR) experiences, to enhance the customer journey. According to Stiehler-Mulder and Frazer (2020), mapping the customer's path is essential for selecting technologies that align with their needs and consumer profiles, particularly in diverse markets like South Africa. For instance, retailers targeting smartphone users should prioritise mobile payment options, whereas those catering to less technologically advanced audiences might adopt Unstructured Supplementary Service Data (USSD) technology. Furthermore, retailers should not disregard older technologies if they add value and improve the customer experience. In supply chain management, integrating advanced technologies enhances delivery accuracy and reliability (Zhou, Dai and Zhang 2007), while enhanced logistics coordination minimises the risk of incorrect

or delayed deliveries (Hansen and Solgaard 2004). Despite these advancements, delivery risks remain a significant barrier to e-commerce adoption. Key challenges include late arrivals, lost packages and product damage (Ariff, Sylvester, Zakuan, Ismail and Ali, 2014; Tanadi *et al.* 2015: 227). Such concerns are particularly pronounced in regions with an underdeveloped logistics infrastructure, as Cho, Im and Hiltz (2003) highlighted. However, in the South African context, a study indicates a relatively consistent delivery experience, with fewer concerns about order fulfilment, as noted by Dan, Taihai and Ruiming (2007: 14).

While advancements in inventory management, automated order processing and real-time tracking have improved delivery reliability (Chopra and Meindl 2019; Brynjolfsson, Hu and Rahman, 2013), challenges persist. Claudia (2012) identifies product damage during handling and transportation as a recurring issue, often linked to inadequate packaging and logistical mishandling. Additionally, delivery delays remain a significant source of perceived risk, contributing to customer dissatisfaction and undermining trust in e-commerce platforms (Forsythe *et al.* 2006). Oliver (1980: 460) explains that dissatisfaction occurs when there is a gap between what customers expect and what they experience. Issues such as late deliveries, wrong orders, or substandard customer service in grocery items can contribute to dissatisfaction after purchase. Similarly, Rust and Oliver (1994: 73) emphasise reducing sources of dissatisfaction to build and sustain customer trust and loyalty. Retailers need to resolve challenges in the purchasing journey to reduce dissatisfaction and strengthen relationships with consumers. Product-related risks, such as receiving incorrect or defective items, further exacerbate consumer hesitation toward online shopping (Tanadi *et al.* 2015: 227; Forsythe *et al.* 2006). These findings underscore the importance of retailers addressing delivery-related concerns and strategically investing in technologies that enhance consumer trust, satisfaction and loyalty in the online shopping experience.

In the South African retail context, deliveries, particularly last-mile logistics, face unique challenges stemming from infrastructure limitations, crime concerns, and geographic disparities between urban and rural areas (Botha 2019: 14). E-commerce growth has accelerated demand for efficient delivery networks, prompting retailers to invest in innovative solutions such as click-and-collect services, parcel lockers, and partnerships with third-party logistics providers (Larkin2024: 2). Urban areas, especially Johannesburg and Cape Town, have seen the introduction of same-day and next-day delivery options supported by route-optimisation technologies and advanced tracking systems (SAILA 2020: 24). However, rural deliveries remain

cost-intensive due to dispersed populations and poor road networks, leading some retailers to employ hybrid distribution models combining national courier services with local delivery agents (Metafour, 2024). Security concerns have also influenced delivery strategies, with some companies adopting secure delivery points and requiring one-time PIN verification to mitigate package theft (Botha 2019: 16). These adaptations demonstrate how South African retailers are tailoring delivery models to balance customer convenience, operational costs, and security, ensuring competitive and reliable fulfilment in a challenging environment.

3.8 CHALLENGES FOR RETAILERS IN SOUTH AFRICA

In the dynamic landscape of South African retail, challenges exist, shaping the industry's trajectory amid 4IR. Challenges include potential barriers to digital access, as a significant digital disparity exists in South Africa (Gillward 2020). Financial constraints and data costs (BusinessTech 2022a), lack of awareness and concerns about integration complexity compound the reluctance to adopt these technologies. Hence, there are data privacy concerns and a need for enhanced digital literacy.

3.8.1 Infrastructure limitations

Infrastructure limitations pose a significant hurdle to successfully implementing 4IR technologies in the South African retail industry. Inadequate digital infrastructure, including network connectivity and e-payment systems, inhibits the seamless integration of technologies like IoT and AI (Alexander 2022: 4). The vast majority of people need access to digital tools. Undoubtedly, technology has significantly disrupted the unskilled labour market by automating and replacing entry-level tasks with more sophisticated technologies. Urgerer (2019) contends that South African shoppers mostly rely on in-store transactions, partly because of the difficulties in making mobile solutions accessible due to extraordinarily high data costs. Observers noted that data costs in South Africa are high compared to other nations, with users paying an average of R39 per gigabyte. Hence, in January 2021, 38.13 million South Africans were using the internet. To increase internet availability, policymakers and infrastructure developers must strengthen fixed and mobile broadband infrastructure. The combined expense of internet connection access and data makes it difficult to move toward a digital economy.

A dependable and effective electricity generation system is crucial for successfully embracing and executing the principles of 4IR. South Africa possesses an electricity installed capacity of around

51,309 megawatts (MW), primarily sourced from coal power plants. However, the current power generation infrastructure needs to be updated, more effective and more adequately serviced. Consequently, during periods of rising demand, load shedding is frequently employed (South Africa Power Africa Fact Sheet 2019). Addressing this challenge requires collaborative efforts between the government, the private sector and technology providers. Investments in infrastructure development, coupled with regulatory support, can create an environment conducive to the effective adoption of 4IR technologies. Retailers need to advocate for and actively participate in initiatives that promote the enhancement of digital infrastructure to unlock the full potential of the retail 4IR revolution.

3.8.2 Venture capital

Moreover, implementing modern and customised technology solutions faces significant financial barriers, requiring substantial venture capital for research, development, testing and piloting. Small-scale retailers need more venture capital to conduct these kinds of endeavours. Therefore, most retailers leading the way in 4IR are the bigger, more well-known stores with access to funding sources (Deloitte 2019). Additionally, smaller retailers struggle to access key technology markets and international innovation teams, further hindering the ability to source and implement cost-effective digital technologies, whereas established retail giants are at the forefront of the 4IR due to their access to financing (Stiehler-Mulder and Mehlape 2021).

3.8.3 Digital literacy

In South Africa, the digital divide is evident among online shoppers, where internet and technology access are predominantly available to those with higher education and financial means. By 2016, the primary demographic for online shopping included individuals aged 25–49 within the LSM 10 category, earning over R30,000 per month. These shoppers were also computer literate and owned smartphones (Prinsloo, 2014).

3.8.4 Skill gaps and training needs

Another barrier is the need for more appropriately skilled employees. South Africa's skills deficit necessitates the acquisition of more essential skills for individuals in low-skill, medium-skill and high-skill jobs. This situation results from a substantial proportion of the population having low formal education and high levels of unemployment. As those with higher levels of education have lower unemployment rates, companies struggle to find people with high skill levels (Alexander

2022: 7). Due to South Africa's digital gap, attributed to poor literacy rates and low or non-existent income in some households, businesses may decide not to prioritise digital advancements to avoid alienating specific demographic groups that comprise most of their clientele.

Upskilling and reskilling current employees are becoming increasingly important for a business to remain competitive, as is attracting personnel with in-demand skills (Deloitte 2019). Proficiency in 4IR competencies encompasses a range of abilities, such as data analytics, ICT, digital marketing, process automation, digital customer communication and social psychology. The advent of 4IR technologies necessitates a workforce with relevant skills. Moreover, the skill gaps are prevalent in South African retail, hindering the optimal utilisation of advanced technologies. Therefore, retailers must prioritise training programmes and upskilling initiatives to empower employees with the necessary digital competencies. Collaborations with educational institutions, government bodies and industry experts can contribute to developing tailored training programmes. By addressing skill gaps and fostering a culture of continuous learning, retailers can build a workforce capable of navigating the complexities of 4IR technologies (Eggenschwiler, Linzmajer, Roggeveen and Rudolph 2024: 2).

3.8.5 Crime

Criminal activities and the fear of such threats significantly hinder innovation opportunities in South Africa, affecting the advancement of 4IR technologies (Alexander 2022: 10). Overcoming these challenges requires collaborative efforts from both the private sector and the government to invest in and enhance digital infrastructure. Simultaneously, addressing skill gaps among the workforce is imperative to adopting 4IR technologies effectively. Retailers must invest in comprehensive training programmes and upskilling initiatives to empower employees with the digital competencies needed to navigate this technological evolution (Stiehler-Mulder and Mehlape 2021). Amidst these challenges, South African retailers have significant opportunities to enhance their operations. Implementing omnichannel strategies presents a compelling prospect. By seamlessly integrating online, offline and mobile channels, retailers can create a unified consumer shopping experience. This integration involves robust e-commerce, s-commerce and m-commerce platforms, efficient inventory management systems and data analytics tools to better understand and respond to consumer behaviours. Personalised experiences, access to a broader product range and benefitting from convenience represent another avenue for differentiation. Leveraging 4IR technologies enables retailers to gather and analyse vast customer data, facilitating tailored experiences based on individual preferences (Lechman 2021:01).

Furthermore, data-driven decision-making emerges as a pivotal opportunity. Retailers can harness the power of advanced analytics to interpret real-time data, gain valuable insights into consumer trends, optimise operations and stay agile in a rapidly evolving retail landscape. By navigating these challenges and embracing opportunities, South African retailers can position themselves at the forefront of the transformative wave brought by the Fourth Industrial Revolution, as discussed in the following two paragraphs.

Alotaibi and Toh (2017) argue that merely preventing advanced cyber threats, such as zero-day exploits or phishing attacks, is inadequate. Additionally, a study by the Ponemon Institute (2020) highlights that many consumers fail to consistently update their antivirus software, leaving their devices exposed despite having security measures in place.

3.9 Addressing challenges in adopting 4IR technologies

Despite retailers' eagerness, a Wholesale and Retail SETA study indicates that over 40% of businesses still need to explore 4IR technologies (Stiehler-Mulder and Mehlape 2021). The reluctance may stem from financial constraints, lack of awareness, or concerns about the complexity of integrating these technologies into existing systems. To address these challenges, retailers must develop comprehensive strategies that include financial incentives, educational programmes and collaborative initiatives within the industry. Emphasising the tangible benefits of 4IR technologies, such as improved operational efficiency and enhanced customer experiences, can incentivise retailers to overcome these challenges (Alexander 2022: 34). Simultaneously, the South African government acknowledges the significant potential of the 4IR in advancing industrial development and enhancing the well-being of its people.

Consequently, South Africa has undertaken preparations for the 4IR through various agencies, including the Department of Trade and Industry (DTI), the Department of Science and Technology (DST), the Council for Scientific and Industrial Research (CSIR) and the Department of Higher Education and Training (DHET). These entities are collaborating to formulate policies and programmes to leverage the opportunities presented by the 4IR. Initiatives such as the Industrial Policy Action Plan (IPAP) and the Future Production Technologies Initiative (IFPTI) demonstrate the government's commitment to this endeavour (Department of Trade and Industry, 2018).

Despite challenges, South African retailers have opportunities to enhance omnichannel strategies. By leveraging omnichannel approaches, retailers can create a seamless shopping experience by integrating online, offline and mobile channels. Recognising this potential, retailers are investing in technology to facilitate a unified customer journey, which includes robust e-commerce, s-commerce and m-commerce platforms, efficient inventory management systems and data analytics tools to understand consumer behaviour. Emphasising convenience and flexibility in the shopping process, such as click-and-collect services, can further enhance the omnichannel experience and drive customer loyalty (Haeri 2023).

3.9.1 Personalisation and customer engagement

Personalisation is a crucial opportunity for South African retailers to distinguish themselves in a competitive market. Through 4IR technologies, retailers can gather and analyse customer data to tailor experiences based on individual preferences and behaviours, whether online, offline, or mobile (Ho and Hoosen 2023). Implementing personalisation strategies in marketing, product recommendations and communications fosters a profound customer connection. AI and ML algorithms enable retailers to predict customer needs and provide relevant offerings, enhancing customer connection and thus improving customer engagement and satisfaction (Nortjè 2023).

3.9.2 Data-driven decision-making

Data-driven decision-making stands out as a significant opportunity for retailers in South Africa. With the vast amount of data generated through various channels, retailers can harness the power of analytics to make informed and strategic decisions. The integration of 4IR technologies enables real-time data processing and analysis, offering valuable insights into consumer trends, inventory management and marketing effectiveness. Thus, retailers can invest in advanced analytics tools and develop capabilities to interpret and act upon data efficiently. By embracing data-driven decision-making, retailers position themselves to adapt swiftly to market changes, optimise operations and stay ahead in a dynamic and evolving retail landscape (Nikolaidis 2024).

3.10 SUMMARY

Chapter three explored the intricate interplay between the Fourth Industrial Revolution and the retail landscape in South Africa. The historical evolution of retail and the transformative impact of 4IR technologies set the stage for a dynamic omnichannel shopping experience. As retailers grapple with technological advancements, consumers navigate new avenues of engagement. The

challenges and opportunities outlined underscore the need for a rich understanding of 4IR's influence on retail, paving the way for informed strategies aligning with South African shoppers' evolving expectations.

CHAPTER FOUR: LITERATURE REVIEW

THEORETICAL GROUNDING OF OMNICHANNEL BEHAVIOUR

4.1 INTRODUCTION

This study critically analyses omnichannel shopper behaviour in the context of the emerging 4IR in South Africa. The primary objective is to describe how South African consumers engage in omnichannel shopping, explicitly focusing on their online and offline interactions, technology adoption and cross-channel integration. The study also aims to identify and analyse the emerging trends in omnichannel retailing driven by 4IR technologies, such as AI and examine their impact on consumer behaviour. Furthermore, it explores how South African consumers' interactions on social media platforms influence their shopping behaviour, mainly because these platforms serve as crucial touchpoints in the purchase decision process. Lastly, the study seeks to propose a model that encapsulates the unique characteristics of omnichannel shopper behaviour in South Africa's 4IR environment, providing valuable insights for retailers and marketers to effectively engage with these consumers. This study examines the stages of consumer decision-making in the omnichannel journey for high- and low-involvement products. The literature on omnichannel retailing and customer journey themes is still emerging, while the consumer behaviour-based decision is a long-established theory. Moreover, research focusing on these constructs from the product category perspective of smartphones and grocery food items still needs to be developed.

This chapter presents the theoretical underpinnings of omnichannel shopper behaviour, focusing on the traditional consumer decision-making model, which serves as the grand theory for this study. The theoretical framework includes the relevant theories that form the foundation of the research and shape the conceptual framework. The researcher based this study on the traditional consumer decision-making model because this theory is well-suited to the research purpose, problem and objectives.

4.2 CONSUMER BEHAVIOUR

Consumer behavioural researchers have extensively examined the intricate processes underlying individual or group choices in selecting, purchasing, utilising, or discarding products, services, ideas, or experiences to fulfil needs and desires (Solomon 2004: 7). Central to the study of consumer behaviour is the analysis of how individuals allocate their resources; time, money and

effort, towards consumption-related goods (Schiffman and Kanuk 2014: 4). This inquiry examines the various dimensions of consumer decision-making, including what, when, why, where and how often purchases occur, as well as post-purchase evaluation processes such as acquisition, usage and disposition (Hoyer, MacInnis and Pieters 2013: 4). Additionally, how consumers dispose of products constitutes a significant aspect of consumer behaviour research (Kardes, Cline and Cronley 2011: 10).

The concept of consumer behaviour typically encompasses two distinct categories of consumption: personal consumption, which involves purchases made for individual use (e.g., shampoo or shaving cream) and household consumption, which entails acquisitions for the entire household or as gifts (e.g., a DVD player) (Schiffman and Kanuk, 2014: 4). Consequently, the examination of consumer behaviour necessitates the application of behavioural principles, derived from empirical investigations, to comprehend economic consumption patterns positioned at the confluence of economic psychology and marketing science; consumer behaviour research endeavours to elucidate the cognitive and behavioural processes shaping consumer decision-making (Foxall 2001 and Foxall 2003).

Scholars such as Kardes *et al.* (2011: 18) argue that rigorous business marketing and consumer research endeavours facilitate the acquisition of pertinent insights into market dynamics, thereby mitigating uncertainties associated with consumer behaviour. Marketers' and retailers' efficacy hinges on their ability to grasp the intricate influences driving consumer behaviour, including individual and group dynamics. A profound understanding of consumer behaviour empowers marketers to pinpoint target audiences and devise effective strategies to engage them (Schiffman and Kanuk 2014: 22). By looking into consumer psychology, environmental influences and the decision-making processes governing varied product and service acquisitions, consumer behavioural research equips marketers with the foresight to anticipate and shape consumers' responses to marketing initiatives.

The discernment of consumer behavioural trends bears direct ramifications on business performance and the formulation of public policies governing commercial operations (Kardes *et al.* 2011: 11). Consequently, rigorous scholarly investigations into consumer behaviour not only enhance organisational competitiveness but also inform the development of regulatory frameworks conducive to sustainable business practices.

Belch and Belch (2009: 30) explored the differences between low- and high-involvement decision-making. They analysed consumer behaviour from a cognitive standpoint. The five-stage decision process model portrays consumers as problem solvers and information processors undertaking various mental processes to assess options and gauge how well they might meet their needs or purchase motivations. Additionally, there are other viewpoints on how consumers gather the knowledge and experience they use in making buying decisions (Belch and Belch 2009: 30).

Consumer behaviour research draws upon foundational concepts originating from various disciplines, such as psychology, sociology, social psychology, anthropology and economics (Schiffman and Kanuk 2014: 15). Early conceptualisations of consumer behaviour often derived from the economic man theory, emphasising rational decision-making processes (Sen 1977: 317). According to Macdonald and Sharp (2000: 5), marketing and economic literature have historically characterised consumer behaviour as intricate problem-solving endeavours, particularly in product choices.

4.3 SOUTH AFRICAN SHOPPER BEHAVIOUR

Demographics, such as gender, age and race, significantly influence consumer behaviour across various platforms in omnichannel retailing. Gender roles, as defined by societal norms, influence how consumers engage with different channels, process information and make purchasing decisions. For example, women tend to be more digitally inclined, often utilising social media and live chats for enquiries. At the same time, men may prefer direct communication methods like phone calls or in-store visits. Additionally, men are more likely to use voice assistants for purchases, whereas women prefer s-commerce platforms (Bazaarvoice 2023). Furthermore, male shoppers emphasise peer interactions, service excellence, convenience, diversity and personalisation, while female shoppers prioritise aesthetics and privacy (Research Portal 2023).

Age also plays a significant role in omnichannel behaviour, as younger consumers, particularly those in their 20s, prefer m-commerce due to its convenience and accessibility (Hayes and Kelliher 2022). However, this preference diminishes with age, with older consumers favouring e-commerce or physical stores. Multi-channel shopping behaviour increases as older consumers are more likely to engage with multiple shopping channels (Emerald 2023). Additionally, generational differences are evident in online spending habits, with Gen Z consumers demonstrating a strong preference for seamless omnichannel experiences, blending online, offline and mobile shopping effortlessly (NielsenIQ 2024).

Race and ethnicity also influence shopping preferences and behaviours, just as cultural backgrounds often dictate product preferences and shopping habits. For instance, retailers often tailor shopping experiences based on the consumer's location, which correlates with cultural and ethnic preferences, allowing advertisements and products to align with cultural norms and expectations (Wikipedia 2024). The omnichannel context allows for greater personalisation, enabling businesses to tailor their marketing strategies to these demographic factors and improve consumer experiences across multiple channels.

In marketing, marketers often categorise consumers by generational cohorts because individuals born within the same period share everyday experiences that shape their ethical orientations and purchasing behaviours (Jayawardhena *et al.* 2019). Shared experiences significantly influence their consumer values and motivations, making generational cohorts a valuable framework for analysing consumer behaviour.

4.3.1 Age

Over the years, retailers and consumer researchers have invested considerable effort in understanding the different generations and how each generation distinguishes itself from the others (Schlossberg 2020). Evidence suggests that different generational cohorts exhibit distinct responses to omnichannel shopping, highlighting the importance of tailoring marketing strategies to each group's unique characteristics (Smith and Anderson 2023).

Generation X

Pentz, Du Preez and Swiegers (2020) highlight that Generation X and millennials significantly influence e-commerce trends due to their robust spending capacity. Similarly, Lipschultz (2020) underscores the younger generation's integral role in driving digital transformation, attributing this to their extensive interaction with digital technologies.

Generation Y

Millennials, typically defined as those born between 1980 and 1994 (Bridgeworks 2017), were aged 27 to 41 in 2021. Although Generation Y is occasionally considered a distinct group, it falls within the millennial age bracket. In South Africa, millennials comprise 27% of the population, totalling 14 million (IOL 2019). According to Ryu, Fortenberry and Warrington (2023: 17), millennials are likely to conduct business with a brand they follow and are likely to follow the brand

before making the purchase. Retailers have identified these consumers as omnichannel shoppers, mainly consisting of the two younger generations, Millennials and Gen Z (Baykal 2021; Donnelly and Scaff 2013).

Generation Z

While most Gen Z shoppers use laptops for online purchases, they still favour in-store shopping due to the faster purchase process and the social experience of shopping with friends. Additionally, many Gen Z consumers rely on their smartphones while in stores to check for items that are out of stock, explore alternative products and compare prices (Ryu, Fortenberry and Warrington 2023: 18). TransUnion (2020) reports that this generation represents 46% of South Africa's consumers, or 27.5 million people, making them the largest generational group. Compared to millennials, Generation Z is more tech-savvy, connected and price-conscious and conducts thorough product research before purchasing (Bridgeworks 2017 and WGSN 2016). Although researchers have limited academic studies on Generation Z due to their young age, businesses recognise them as a key consumer group for online products and strive to understand how they differ from millennials.

4.3.2 Gender

Caswell (2000) offers a perspective, suggesting that men engage in online shopping more frequently than women. These gender dynamics indicate that marketing strategies could be optimised by focusing more on female consumers, particularly in categories such as groceries and apparel, where online shopping among women has experienced notable growth (How age, gender and education influence online retail adoption in SA 2023).

4.3.3 SEM

The Living Standards Measure (LSM) is a pivotal tool in South Africa for segmenting the population based on living standards, encompassing factors such as urbanisation, ownership of durable goods and access to services (South African Audience Research Foundation, 2012). This study concentrates on LSM groups 6 through 10, representing society's middle to upper echelons. Individuals within LSM 6 and 7 typically reside in urban areas, possess amenities like electricity and running water and own household appliances such as refrigerators and televisions. Conversely, those in LSM 8 to 10 enjoy higher living standards, with access to advanced consumer goods, superior education and comprehensive services (Ncube and Serumaga-Zake

2015: 4). Understanding these distinctions is crucial for policymakers and businesses aiming to address South Africa's diverse socio-economic spectrum needs.

4.3.4 Devices used

Statista (2021) and Kemp (2021) confirm that mobile devices dominate internet usage in South Africa. Desktop computers, as referenced in studies by Euromonitor GMID (2012), Mintel (2014b), Verhoef *et al.* (2015), Holmes *et al.* (2014) and Chaffey (2009). Smartphones, according to Euromonitor GMID (2012), Mintel (2014b), Verhoef *et al.* (2015), Holmes *et al.* (2014) and Chaffey (2009). Tablets, as discussed in Euromonitor GMID (2012), Mintel (2014b), Holmes *et al.* (2014), McCormick *et al.* (2014) and Verhoef *et al.* (2015).

Laptops mentioned in sources including Euromonitor GMID (2012), Mintel (2014b), Verhoef *et al.* (2015), Holmes *et al.* (2014), Chaffey (2009) and Verhoef *et al.* (2015).

4.4 OMNICHANNEL SHOPPING

According to Paterson (2024),

Competition has heated up, with local players in fast-moving consumer goods (FMCG) and the technology and durables retail markets launching apps with competitive features such as same-day delivery (or even one-hour delivery for groceries); subscription services for unlimited deliveries during the month; and larger product ranges.

The shopping landscape, particularly for groceries, is undergoing a significant transformation influenced by the integration of various channels that cater to the modern consumer's need for convenience, efficiency and value. This discussion draws upon recent literature to unpack the dynamics of grocery shopping through omnichannel platforms, focusing on consumer behaviours, preferences and the evolving market structure.

4.4.1 Consumer Shopping Behaviours and Preferences

Grocery shopping is traditionally perceived as a routine, often unthinking activity due to the regular need for food items (Puhle, Briem and Vortisch 2020: 2). However, the experience can be pretty strenuous and inconvenient, as consumers often express displeasure in tasks such as transporting groceries to their vehicles (Mäkelä 2023). Despite these challenges, the frequency

of store visits remains high, with findings from Bronnenberg, Klein and Xu (2024) indicating that Finnish consumers visit retail stores approximately 4.3 times weekly, spending an average of 48 minutes per visit.

The tedious nature of traditional grocery shopping has set the stage for the appreciation and gradual adoption of online grocery shopping. Asgari *et al.* (2023) and Brüggemann and Olbrich (2023) suggest that online shopping offers significant advantages, including cost savings, time efficiency and access to a broader product range. Additionally, Li, Li and Gharehgozli (2023) highlight the benefits of competitive pricing and enhanced access to product information, which are pivotal in shaping consumer decisions.

4.4.2 Adoption of Online Grocery Shopping in South Africa

Despite the global trend towards online shopping, the adoption rate in South Africa has been unexpectedly slow (Pentz, Du Preez and Swiegers 2020; Cloete and Mugobo 2021; Musikavanhu and Musakuro 2023; Thusi *et al.* 2022). Studies indicate a persistent reluctance among South African consumers to embrace online grocery shopping, attributed to various factors that research seeks to uncover (Cloete and Mugobo 2021; Paelo and Goga 2019; Thusi *et al.* 2022; Weber and Badenhorst-Weiss 2018).

4.4.3 Consumer Behaviour and Technology Integration

The distinction in shopping behaviours for groceries versus non-grocery items suggests a segmented approach by consumers (Johnson and Iyamu 2019 and Mkansi *et al.* 2019). Dharmesti *et al.* (2021) found variations in consumer behaviours across different contexts and product types. The transition to online grocery shopping represents a shift in platform and consumer habits and expectations. Chetioui, Lebdaoui and Chetioui (2021) argue that online grocery shopping complements rather than replaces traditional methods facilitated by digital technologies that enhance consumer experiences.

As Kumar and Usman (2024) observe, social influence plays a crucial role and consumers are more likely to adopt online grocery platforms if influenced by their social circles. Moreover, facilitating conditions like access to necessary technological resources like smartphones or stable internet connections are essential for engaging with online platforms (Hossain and Zhou 2018).

4.4.4 Perceived Value and Habit Formation

The concept of perceived value is critical in online grocery shopping, where consumers weigh the benefits against the costs (Habib and Hamadneh 2021). Sensuse and Lusa (2024), Mäkelä (2023), Gopakumar and Dananjayan (2023) and Hungilo and Setyohadi (2020) note that the convenience, time-saving features and the ability to easily compare prices and find deals are significant factors that drive consumer adoption. This positive perception fosters a habitual behaviour where purchasing groceries online becomes a regular practice (Van Droogenbroeck and Van Hove 2021).

4.5 THEORIES

In social science research, theories are commonly identified as models or frameworks. These frameworks serve as structured methods for understanding and explaining consumer behaviour by systematically organising essential concepts and their interrelations (Nilsen 2020). A framework aims to elucidate the occurrence mechanisms and integrate the studied phenomena's technical and social contexts (Borsboom, van der Maas, Dalege, Kievit and Haig 2021). Applying theories in research offers several benefits: Firstly, they enable a systematic exploration and comprehension of the intricacies involved in consumer decision-making processes (Ahmetoglu, Che Cob and Ali 2022). Secondly, they guide the interpretation of empirical data collected over time. Thirdly, theories foster the creation of testable hypotheses that are empirically assessable through research (Braun and Clarke 2023).

Additionally, they help bridge the gap between assumptions and predictive actions within specific contexts. More importantly, many consumer behaviour theories are designed to offer broader explanations of human behaviour than in particular situations (Ahmetoglu *et al.* 2022). This broad applicability allows for extrapolating findings from studies grounded in these theoretical frameworks to various populations, cultures and market settings (Braun and Clarke 2023).

Other scholars assert the necessity of anchoring social science research in specific theories to substantiate empirical findings (Akanle and Shittu 2020). Mudd, Feo, Conroy and Kitson (2020) emphasise that such grounding is essential for ensuring validity and coherence in research. Theories provide the framework for formulating hypotheses, interpreting data and drawing conclusions (Akanle, Ademuson and Shittu 2020). Grounding research in established theories

allows scholars and researchers to deepen their understanding of the phenomena under study and significantly contribute to the existing knowledge base (Mudd *et al.* 2020).

Selecting an appropriate theory, or a combination of theories, presents challenges, notably due to the complexity inherent in understanding the theories themselves (Akanle *et al.* 2023). Many marketing theories, originating from sociology, pose additional challenges for researchers attempting to grasp their initial contexts and aims within the sociology discipline (McDaniel Jr and Gates 2020). Even experienced researchers find it challenging to apply socio-technical theories effectively and while they may understand a theory well, using it contextually remains challenging. Furthermore, the overlap in focus areas of some social theories can cause confusion among researchers (Stocchi, Pourazad, Michaelidou, Tanusondjaja and Harrigan 2022).

Given these challenges, researchers must critically evaluate which theories could underpin their study, a decision primarily based on the research objectives. While there is no prescriptive formula for selecting theories, a thorough understanding of various theories is crucial for making an informed choice (Mkhomazi and Iyamu 2024: 528). The process typically involves reviewing the research objectives first and examining potential theories. This review aims to identify the theories that best align with the study's objectives and provide the researcher with the appropriate lenses to examine the constructs involved.

The researcher carefully selected theories that align with the core concepts of the study, specifically consumer behaviour and omnichannel retailing. The researcher chose theories with conceptual similarities to address the gaps identified in the research. This study explored a range of consumer behaviours and omnichannel theories. A thorough understanding of these theories will enable marketers to accurately predict consumer purchasing behaviours to a certain degree. Additionally, the primary objective of incorporating these theoretical models is to demonstrate their relevance and validity in the context of consumer behaviour during the 4IR era. A detailed discussion of the theories considered for this study follows from Section 4.3.1.

A systematic review by Mishra, Singh and Koles (2020: 10) revealed that numerous studies in contemporary omnichannel retailing needed a clear theoretical foundation. Their analysis found that only 24.43% of the studies employed specific theoretical frameworks. Among the reviewed studies, researchers focused on various theories to explore distinct facets of omnichannel retailing. Information systems theories, such as the technology acceptance model (Perannagari and Chakrabarti 2019), the theory of planned behaviour (Jo, Kim and Choi (2020; Xu and Jackson

2019a), the theory of reasoned action (Park and Kim 2019) and the extended unified theory of acceptance and use of technology (Juaneda-Ayensa Mosquera and Sierra Murillo 2016; Kazancoglu and Aydin 2018) were applied in examining the technological aspects of omnichannel retailing. In addition, there was a notable focus on consumer behaviour, with frameworks like commitment-trust theory (Xu and Jackson 2019a), situated cognition theory (Hilken, Heller, Chylinski, Keeling, Mahr and de Ruyter 2018), self-determination theory (Zhang, Ren, Wang and He 2018b) and formal disappointment theory (Du *et al.* 2018) used to explore consumer motivation, trust, preferences, value and concerns within omnichannel settings. Hence, the researcher can apply the theories discussed in the preceding paragraphs to omnichannel retailing.

4.5.1 Technology Acceptance Model (TAM)

TAM, initially developed by Davis, Bagozzi and Warshaw (1989: 983), provides a theoretical framework for understanding how individuals accept and use modern technologies. TAM posits that two key factors—perceived usefulness and ease of use—determine an individual's intention to adopt and use technology. Perceived usefulness refers to the extent to which a person believes that using a technology will enhance their performance or productivity, while perceived ease of use pertains to the degree to which they find the technology simple to use and learn (Davis *et al.* 1989: 983).

In omnichannel retailing, TAM examines consumer attitudes towards adopting digital channels, such as online and mobile shopping platforms. Research has demonstrated that perceived usefulness and ease of use significantly predict consumers' intentions to engage with digital channels (Hassan, Kouser and Malik 2021; Yang, Yeh and Tsai 2018). For instance, consumers may view online shopping as more convenient and offering a more comprehensive range of products than traditional in-store shopping, enhancing its perceived usefulness. Similarly, users who find online platforms user-friendly are more inclined to use these channels for shopping.

TAM's focus on technology adoption in isolation without addressing the complexities of cross-channel experiences makes it less applicable. This limitation is particularly relevant given that the impact of cross-channel interactions remains inadequately explored. TAM primarily addresses pre-adoption behaviours and does not account for post-adoption usage, which is crucial for understanding how technology integrates with broader consumer journeys.

In omnichannel retailing, the challenges extend beyond technology adoption, including cross-channel experiences and customer data management concerns. The omnichannel approach introduces new elements, such as integrating online and offline services, which TAM does not address. For example, consumers are increasingly concerned about risks associated with online transactions, including privacy, financial security and product performance (Piotrowicz and Cuthbertson 2014). TAM can still be valuable for assessing South African consumers' perception of and adoption of omnichannel retail technologies, such as mobile apps and integrated services. For instance, South African grocery retailers like Pick n' Pay are adopting mobile apps to provide seamless shopping experiences across online and in-store platforms.

The influence of AI tools and mobile applications on consumer decision-making is supported by the Technology Acceptance Model (TAM), which posits that consumers' adoption of digital platforms is driven by their perceived usefulness (e.g., time savings, relevance) and ease of use (e.g., intuitive apps, chatbot assistance). These factors facilitate engagement during the pre-purchase phase and influence final purchasing decisions. Overall, while TAM offers insights into the factors influencing technology adoption, it must be complemented with other frameworks to fully understand the complexities of omnichannel retailing and the post-adoption usage of technology.

4.5.2 Unified Theory of Acceptance and Use of Technology (UTAUT)

The unified theory of acceptance and use of technology (UTAUT), developed by Venkatesh, Morris, Davis and Davis in 2003, provides a comprehensive framework for understanding user adoption of technology by integrating elements from eight prominent technology adoption models. The theory highlights four key constructs—performance expectancy, effort expectancy, social influence and facilitating conditions—that influence user intentions and behaviours in technology use. Additionally, four moderators—gender, age, experience and voluntariness of use—affect the strength of these relationships. UTAUT has been widely applied across various contexts, including e-learning, mobile applications and healthcare, making it a valuable tool for analysing technology adoption in diverse settings.

UTAUT expands on TAM by including factors such as social influence, facilitating conditions and user experience. It provides a more comprehensive view of technology adoption. UTAUT can explain how social influence and facilitating conditions affect the adoption of omnichannel services, particularly in environments like the South African market. Retailers like Woolworths

leverage integrated marketing strategies that blend online and physical store experiences (Marikyan and Papagiannidis 2023: 2).

4.5.3 Situated Cognition Theory

Situated cognition theory is strongly associated with the work of Jean Lave and Etienne Wenger, mainly through their 1991 book *Situated Learning: Legitimate Peripheral Participation* (Irby, Brown, Lara-Alecio and Jackson 2013: 186). Situated cognition theory suggests that people acquire and apply knowledge through specific contexts and activities. This theory, rooted in the work of scholars like Jean Lave and Etienne Wenger, indicates that learning occurs through authentic activity, context and culture rather than in isolation. The theory emphasises that cognition occurs within social, cultural and physical environments, meaning that people connect understanding and problem-solving deeply to the setting and practices of their particular community. Situated cognition highlights the importance of real-world experiences, collaboration and participation in social practices for effective learning. This theory has significant implications for education, advocating for learning environments that simulate real-life situations and emphasise the practical application of knowledge.

In the context of this study, situated cognition theory is highly relevant as it explains how consumers navigate, interpret, and adopt emerging retail technologies within their specific socio-economic and cultural realities. Omnichannel retailing in South Africa requires shoppers to integrate digital and physical touchpoints, such as mobile apps, in-store kiosks, and delivery tracking systems, into their shopping journeys. The way shoppers learn to use these technologies, make purchase decisions, and develop trust in digital platforms is shaped by their immediate context, including digital literacy levels, infrastructure availability, and community norms around technology adoption. In line with situated cognition, these behaviours are not developed in isolation but are embedded in lived experiences, such as prior exposure to online transactions, peer recommendations, and in-store demonstrations. By applying this theoretical lens, the study can better capture how South African shoppers internalise and adapt to omnichannel retailing innovations, revealing insights that may differ significantly from those observed in developed economies where the 4IR retail environment is more mature and digital engagement is more ingrained in everyday life.

4.5.4 Theory of Planned Behaviour (TPB)

The theory of planned behaviour (TPB), developed by Icek Ajzen in 1985, is a psychological theory that aims to predict and explain human behaviour in specific contexts (Ajzen 1991: 179). TPB posits that behaviour is driven by three core components:

1. Attitude toward the behaviour: The degree to which a person has a favourable or unfavourable evaluation of the behaviour.
2. Subjective norms refer to the perceived social pressure from significant others, such as family, friends and colleagues, to perform or not perform a specific behaviour.
3. Perceived Behavioural Control: The individual's perception of the ease or difficulty of performing the behaviour is assumed to reflect past experiences and anticipated obstacles.

According to TPB, these components influence an individual's intention to engage in a behaviour, which is the immediate antecedent to the behaviour itself. The stronger the intention, the more likely the behaviour will occur, assuming the person has sufficient control over it. TPB is widely used in various fields, such as health, marketing and environmental studies, to predict behaviours ranging from consumer choices to public health interventions (Santos and Gonçalves 2021: 8).

The pre-purchase and purchase behaviours examined in this study reflect Ajzen's Theory of Planned Behaviour, wherein omnishoppers' attitudes toward convenience, social norms (e.g., peer influence via social media), and perceived ease of using digital tools (AI, apps, mobile commerce) collectively shape behavioural intention and actual purchase behaviour.

4.5.5 Theory of Reasoned Action

The theory of reasoned action (TRA), developed by Martin Fishbein and Icek Ajzen in 1975, offers a framework for understanding the relationship between attitudes and behaviours in human action. TRA posits that an individual's intention to perform a behaviour primarily determines their behaviour. This intention is, in turn, influenced by two key factors: the individual's attitude toward the behaviour and subjective norms. Attitude refers to the individual's positive or negative evaluation of performing the behaviour. In contrast, subjective norms capture the perceived social pressures to engage or not engage in behaviour based on the views of significant others, such as friends, family, or colleagues (Nickerson 2023).

TRA assumes that individuals are rational decision-makers who systematically process information before acting. According to the theory, when individuals have firm intentions influenced by favourable attitudes and supportive subjective norms, they are more likely to engage in the corresponding behaviour. However, TRA also assumes that individuals have complete control over their behaviour, which limits its applicability in scenarios where control is constrained. To address this limitation, TPB extended TRA by incorporating perceived behavioural control, acknowledging that control over behaviour can be limited in certain situations (Ajzen 1991: 180).

Researchers employed TRA in omnichannel retailing to analyse consumer behaviour, particularly channel choice and migration. For instance, Verhoef *et al.* (2007: 130) applied TRA to study multichannel customer management, exploring how attitudes and subjective norms influence consumer decisions across multiple retail channels. Verhoef *et al.* (2007: 130) acknowledged that their study was constrained by the model's exclusion of specific channels, as including all channels would have made data collection excessively burdensome. Consequently, they proposed that employing a framework grounded in the consumer decision-making process would enhance the understanding of channel usage and make data collection on omnichannel behaviour more feasible within the available timeframe.

By utilising TRA, researchers can gain insights into how consumer attitudes and social influences affect their choices across various retail channels, thereby informing strategies to enhance omnichannel retailing. However, the challenge still needs to address TRA's limitations, particularly regarding the model's scope and the practicalities of data collection in comprehensive omnichannel studies.

Although the Theory of Planned Behaviour (TPB) extends the Theory of Reasoned Action (TRA), both are included in this study to provide a clear theoretical progression and stronger conceptual grounding in explaining omnichannel shopper behaviour in South Africa's 4IR retail context. TRA offers the foundational understanding of how attitudes and subjective norms shape behaviour under full volitional control, while TPB extends this by incorporating perceived behavioural control, accounting for real-world constraints such as infrastructure, digital literacy and socio-economic factors. Using both enables comparison between contexts where behavioural control is and is not a significant factor, ensuring the study captures both the core motivational drivers of omnichannel shopping and the moderating effects of external limitations.

4.5.6 Self-Determination Theory

Self-determination theory (SDT), developed by Ryan and Deci (2019), focuses on human motivation and behaviour, emphasising that people have three basic psychological needs: autonomy, competence and relatedness. Autonomy refers to the need to feel in control of one's actions; competence involves feeling effective and capable in one's activities; and relatedness refers to the need to feel connected and valued in relationships. When these needs are satisfied, individuals experience greater intrinsic motivation, psychological growth and well-being. SDT is widely applied in education, healthcare and organisational behaviour to foster environments that support inherent motivation and promote human flourishing.

In the context of this study, SDT provides valuable insight into how consumer engagement with retail technologies can be understood through the satisfaction of these three needs. The autonomy dimension is reflected when South African shoppers can choose among multiple retail channels, such as mobile apps, e-commerce websites, and physical stores, and seamlessly transition between them, empowering them to shop in ways that suit their preferences and circumstances. The competence dimension emerges as consumers gain confidence in navigating advanced retail technologies like mobile payments, AR product visualisations, and real-time delivery tracking, which can influence purchase satisfaction and loyalty. The relatedness dimension is expressed through digital and physical interactions that foster a sense of connection, whether through personalised recommendations, social media engagement with brands, or in-store assistance that complements digital experiences.

4.5.7 Consumer Decision-Making Process Model

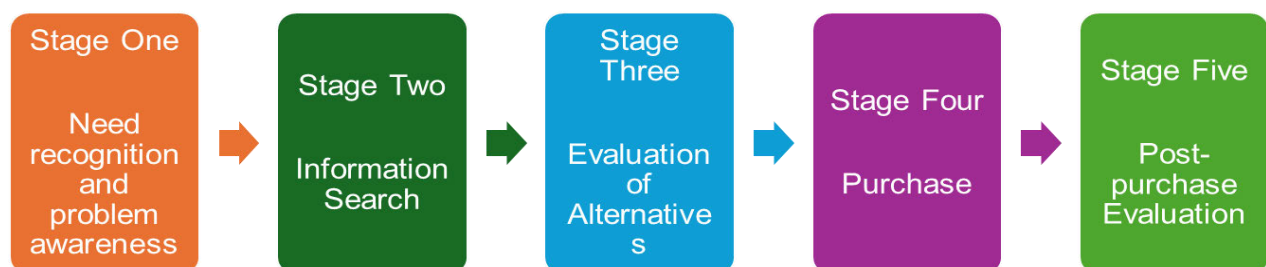


Figure 4. 1The five-stage consumer decision-making process

(Source: Kotler 2012)

Consumer behaviour theorists have frequently adopted a stage-model approach, conceptualising consumer decision-making as a sequential process unfolding over discrete stages (Lin and Chen 2006). Decision-making, within this framework, entails the systematic selection of product alternatives aligned with individual values and preferences (Fülöp 2005:1). This process typically involves stages such as problem definition, goal establishment, alternative identification, criteria definition, decision-making tool selection, alternative evaluation against criteria and solution validation (Fülöp 2005: 1; Baker *et al.* 2001).

An exemplar model in this realm, the EKB model, posits a series of sequential steps culminating in problem-solving solutions, with critical stages including demand confirmation, information search, alternative evaluation, purchase and post-purchase evaluation (Lin and Chen 2006). Simplifying this process further, Schiffman and Kanuk (2014: 555) delineate key stages of consumer behaviour as need recognition, pre-purchase processing, alternative evaluation, purchase trial and post-purchase behaviour. Despite variations in the number of stages delineated across models, a prevailing theme suggests a rational, sequential approach to consumer purchasing tasks.

The purchasing decision-making model, called the consumer buying process, is a valuable tool for marketers to comprehend consumers' progression from initial product awareness to final purchase determination. This model outlines consumers' steps, from recognising a need to purchase it and engaging in post-purchase behaviour. Philip Kotler and other consumer behaviour theorists, including Engel, Kollat and Blackwell, who developed the Engel-Kollat-Blackwell (EKB) model, primarily based it on their work. These theorists emphasised the importance of understanding the cognitive processes that underlie consumer decisions.

Retailers and digital marketers use the 5-stage model to understand consumer journeys, tracking activities from digital information searches to post-purchase reviews. It helps businesses develop strategies that target each stage, such as personalised advertisements during the information search stage or loyalty programmes after purchase. This model helps analyse how South African consumers navigate different channels when making purchase decisions, especially in high and low involvement shopping, for example, where Checkers' Sixty60 app enables consumers to compare products online before purchasing them in-store or through the app. The structure of this study's conceptual framework draws heavily from the Consumer Decision-Making Model, mapping pre-purchase (awareness, search, evaluation), purchase (decision, payment, delivery) and post-purchase (satisfaction, dissatisfaction) stages.

4.5.7.1 Pre-purchase

Stage 1: Need recognition and problem awareness

The initial stage of the consumer decision-making process, identified as need recognition, involves identifying a problem or desire that requires a resolution or satisfaction. Internal cues, such as hunger, or external stimuli, such as advertisements, may trigger this recognition. Bettman *et al.* (1998: 204) suggest that pre-purchase evaluations significantly reduce cognitive effort and give consumers the confidence necessary for decision-making. This aligns with Ajzen's (1991: 182) theory of planned behaviour, which posits that attitudes formed during the evaluation phase play a pivotal role in shaping intentions and subsequent behaviours. This phase is critical for marketers, as understanding when and why consumers identify a need allows for strategic targeting and precise placement of advertisements to capture consumers during these "micro-moments."

Micro-moments—fleeting instances where consumers instinctively turn to digital devices for immediate information—have become increasingly prominent in the 4IR, characterised by pervasive digital connectivity. These moments influence every stage of the consumer journey and are critical opportunities for marketers to shape consumer preferences and behaviours. For instance, a company might target specific audience segments with tailored social media advertisements during key times, such as promoting food products during lunchtime, to align with emerging consumer needs. Many marketing strategies aim to heighten awareness among target audiences, encouraging them to progress further along the decision-making continuum and ultimately facilitating purchase conversion (Park University, 2024).

In omnichannel retailing, need recognition gains additional complexity and significance. Omnichannel retailing integrates multiple shopping channels—physical stores, online platforms and mobile applications—to deliver a cohesive and synchronised consumer experience. Within this stage, problem recognition may occur across various touchpoints, including social media, retailer websites and physical stores. This necessitates a consistent brand presence and messaging to capture consumer attention effectively. By monitoring consumer data and behaviour, brands can identify these micro-moments, enabling timely and relevant marketing interventions. For instance, a consumer might first encounter a product through a social media advertisement, explore it further on the retailer's website and finalise in-store purchases (Think with Google, n.d.). Forsythe and Shi (2003: 869) emphasise the Internet's significance in

empowering consumers to explore a wide range of products, access and save information, evaluate prices and make purchase decisions with ease.

Urrego, Pineda and Restrepo (2024: 2) emphasise the role of social media in facilitating product discovery and comparisons, while Ntobaki (2023) highlights how factors such as responsiveness to social media interactions influence consumer perceptions of brands. The seamless integration of online and offline channels allows consumers to transition effortlessly between digital exploration and in-store shopping. This makes omnichannel strategies vital for engaging consumers effectively during the need recognition phase.

Social media platforms, including Facebook, Instagram and Twitter, significantly influence consumer decision-making. Kaplan and Haenlein (2010: 62) observe that social media fosters a sense of community and shared experiences, which heavily impact consumer behaviour. Consumers often use social media to evaluate brands, seek recommendations and assess product quality in the context of grocery items. Zhang and Benyoucef (2016: 115) emphasise that the interactive nature of social media builds trust and reduces perceived risks associated with purchase decisions. Features such as Instagram's shoppable posts, peer reviews, product ratings and user-generated content further enhance consumer confidence by providing social proof and reducing uncertainty (Mangold and Faulds 2009: 357). Consumers frequently rely on these platforms to validate and confirm their choices for high-involvement products like smartphones.

The findings align with those of Zhang and Benyoucef (2016: 120), who assert that social media's interactive features significantly enhance consumer engagement during the information-gathering stage. By effectively leveraging these platforms, marketers can create a cohesive omnichannel strategy that engages consumers at every stage of the decision-making process, ensuring a seamless transition from need recognition to purchase.

Stage 2: Information Search

Once the problem or need is recognised, consumers enter the information search phase, gathering data to make an informed decision. Depending on the type of product, the extent of the search varies. Consumers rely on past experiences or a quick online search for low-involvement products, like everyday groceries. The search process is more intensive for high-involvement purchases, such as electronics or vehicles, often involving consulting multiple sources—reviews, expert opinions and in-store visits. The consumer actively seeks information to make an informed decision, utilising both internal (memory) and external (online searches and advice from friends)

resources. Theories of bounded rationality influence information search by suggesting that consumers seek information within the limits of their cognitive capacity. Researchers study this stage in digital marketing by analysing how online reviews, search engines and social media influence how consumers search for information.

The proliferation of digital technologies, mainly social media and review platforms has transformed how consumers search for information. Social proof, influenced by peer activities like likes, shares and comments, significantly impacts purchasing decisions. Jeswani (2024: 3) highlights the role of these interactions in fostering brand loyalty and increasing brand awareness. Consumers rely on digital sources for recommendations and marketers must optimise their online presence to provide relevant, trustworthy information. People use their prior experiences with a brand, interpersonal anecdotes and past brand communications as key retrieval cues, as the information search process directly connects with memory mechanisms. Priporas, Stylos and Fotiadis (2017) suggest that digital displays enhance the decision-making process for consumers. Consequently, brand-building endeavours over time contribute to the formation of robust memory structures, ensuring brand salience and facilitating recall during the search phase.

In omnichannel retailing, the information search stage assumes augmented complexity and significance. Omnichannel retail strategies require seamless integration of various channels, including physical stores, e-commerce platforms and mobile applications, to provide consumers with a cohesive and synchronised shopping experience. Marketers must orchestrate cohesive information dissemination strategies across multiple touchpoints to cater to diverse consumer preferences and behaviours. This involves optimising online platforms for product research, leveraging social media channels for consumer engagement and ensuring consistency in brand messaging across all channels to build trust and help consumers make informed decisions. Zhang *et al.* (2014) explored the symbolic connections established through social media interactions. Their findings indicate that retailers can strengthen consumer engagement on social platforms by focusing on reviews, price comparisons and brand-related discussions.

Marketers must ensure this information is consistently available and accessible across all touchpoints, from online reviews and product descriptions to in-store consultations. Hence, social media platforms and online reviews influence this evolving landscape as pivotal resources for consumer information gathering. Rather than seeking recommendations through direct interpersonal communication, individuals frequently turn to social networks to solicit unrestricted feedback from acquaintances and strangers. Empirical evidence underscores the significance of

social media in shaping purchasing decisions, with statistics indicating substantial reliance on online content for product evaluation and selection (Jones *et al.* 2017).

Stage 3: Evaluation of Alternatives

At this stage, consumers compare various products or services to find the best option based on their needs, weighing factors such as product attributes, price, brand reputation and convenience. A combination of consumer preferences, prior experiences and external influences like advertising, peer recommendations and reviews influence this stage. During the evaluation of alternative stages within the consumer decision-making process, individuals critically appraise available options to address their identified needs or desires. This phase operates in tandem with the preceding information search stage, with consumers transitioning fluidly between the two as they navigate their decision journey. Key considerations during this stage include assessing product suitability and exploring alternatives to ascertain optimal satisfaction.

Hence, consumers scrutinise various dimensions of products or brands, including product attributes, pricing structures and preferred purchase channels, often leveraging reviews and comparative analyses to inform their decision-making process. The evaluation process is iterative, with consumers continually reassessing options against evolving preferences and requirements. Multi-attribute models influence this stage by suggesting that consumers evaluate products based on various attributes.

After identifying desired attributes, consumers seek the most favourable deal, considering many internal and external factors to optimise value propositions. Central to this phase is forming an evoked set, representing a mental inventory of viable alternatives. Notably, the evaluation stage encompasses a dynamic process of elimination, where brands that fail to align with consumer expectations risk exclusion from consideration. Re-establishing relevance after elimination poses formidable challenges, underscoring the criticality of effective engagement at this juncture.

In the context of omnichannel retailing, the evaluation of alternatives assumes heightened complexity and significance. Omnichannel strategies require seamless integration of diverse channels, encompassing physical retail outlets, online platforms and mobile applications, to provide consumers with a cohesive and synchronised shopping experience. Marketers must strategically orchestrate consistent messaging and product availability across all touchpoints to facilitate informed decision-making. Furthermore, the omnichannel environment introduces additional considerations such as inventory visibility, pricing consistency and accessibility, which

profoundly influence consumer evaluations and purchase decisions. Effective navigation of the evaluation stage within an omnichannel context demands a holistic approach that includes robust data analytics, personalised communication strategies and agile response mechanisms. This approach allows marketers to position their brand as superior by emphasising unique value propositions and adapting to evolving consumer preferences and market dynamics. In omnichannel retailing, consumers evaluate alternatives across both digital and physical channels. For instance, a consumer may compare prices online before heading to a store to inspect the product physically. Therefore, omnichannel strategies must ensure consumers experience consistent product messaging and pricing across all channels to avoid confusion or mistrust.

4.5.7.2 Purchase

Stage 4: Purchase Decision

During the purchase decision stage of the consumer decision-making process, individuals finalise their selection of the desired product and determine the preferred purchase venue based on comprehensive evaluations undertaken in the preceding stages. This decision's culmination reflects a synthesis of functional and emotional considerations influenced by past interactions and advertising stimuli encountered throughout the decision journey.

The consummation of the sale at this juncture represents a pivotal moment wherein the customer's experiential expectations intersect with the actual transactional encounter. The quality of this experience profoundly impacts consumer satisfaction and post-purchase perceptions, influencing brand loyalty and advocacy. Transactional exchange is critical for fostering positive consumer sentiments and bolstering brand affinity in physical retail environments or online channels. In addition, failure to meet or exceed consumer expectations during the purchase transaction jeopardises the entire sales venture, potentially leading to dissatisfaction and brand disengagement. Conversely, a seamless and gratifying purchase experience reinforces the consumer's confidence and engenders brand allegiance, facilitating repeat purchases and word-of-mouth endorsements.

The purchase decision stage assumes heightened significance and complexity. Omnichannel strategies necessitate aligning transactional processes across diverse channels to ensure consistency in product availability, pricing transparency and service quality. Marketers must orchestrate integrated customer experiences seamlessly, transitioning between offline and online

touchpoints and fostering convenience and continuity throughout the purchase journey. In omnichannel retailing, the convenience of the purchasing process often influences the purchase decision. For example, a seamless checkout experience across mobile apps, websites and physical stores can encourage purchase completion. Additionally, omnichannel strategies can facilitate purchases through various offers like "buy online, pick up in-store" (BOPIS) options, ensuring consumer flexibility. Therefore, brands must integrate payment systems, stock management and customer service across all channels to offer a smooth experience.

Efficient execution of the purchase decision stage within an omnichannel framework requires strategic investments in technology infrastructure, data integration and customer relationship management. Moreover, it necessitates a customer-centric approach that prioritises personalised engagement, anticipates consumer needs and delivers frictionless transactional experiences across all channels.

The purchase decision stage represents the culmination of the decision-making process, where the consumer chooses the product and determines the purchase method (in-store, online, or through a mobile app or social media). However, the consumer makes a final decision on which product to purchase based on evaluating alternatives. Behavioural economists and psychologists have examined this stage, focusing on decision-making biases and heuristics affecting purchase decisions. Previous stages heavily influence this phase—if a brand has successfully engaged a consumer with the correct information and positioned itself as the best alternative, it stands a high chance of conversion.

4.5.7.3 Post-purchase

Stage 5: Post-Purchase Behaviour

Following a purchase, consumers enter a crucial phase characterised by post-purchase behaviour and evaluation, during which fulfilling their expectations significantly impacts their satisfaction. This stage is often framed within the theory of cognitive dissonance, which refers to the discomfort arising from conflicting thoughts, beliefs, or attitudes about decisions and subsequent adjustments to align these attitudes (Festinger 1957). For high-involvement purchases, such as automobiles and premium technology products, consumers frequently seek validation of their decisions by engaging with product-related advertising.

Consumers evaluate their decisions during this stage, resulting in either satisfaction or dissatisfaction. Post-purchase behaviour is essential, as it influences brand loyalty and future purchase decisions. Satisfaction arises when a product meets or exceeds expectations, while unmet expectations may lead to cognitive dissonance or buyer's remorse. Oliver (1980: 460) emphasised that satisfaction is determined by the alignment between a consumer's expectations and their perceptions of a product's performance.

Smooth payment processes, timely deliveries and accurate orders are critical factors in ensuring satisfaction for grocery food items. Anderson and Srinivasan (2003: 126) highlighted that a positive shopping experience fosters customer loyalty and repeat purchases, suggesting that retailers should focus on enhancing the purchasing process to maximise satisfaction.

Consumer Advocacy and Recommendations

Positive purchase experiences often drive recommendations, particularly for high-involvement products like smartphones (East *et al.* 2017: 154). However, Bughin *et al.* (2010: 84) noted that such recommendations are frequently shaped by social networks and peer influence rather than intrinsic loyalty, indicating that external factors significantly impact advocacy. Keller (2001: 12) argued that the rapid pace of technological advancements reduces repeat purchases for high-involvement items, as consumers often seek updated models with improved features.

Fuchs *et al.* (2010: 124) found that social media engagement for high-value products depends on the emotional connection to the product and the perceived importance of sharing the experience. In contrast, Belk (2013: 477) suggested that digital possessions reflect identity through product sharing, although this behaviour may be less evident for smartphones due to their functional nature.

Returns and Post-Purchase Support

For high-value products, like smartphones, Lee *et al.* (2016: 129) emphasised the need for clear, formal written communication during the return process. Morgeson *et al.* (2020: 33) suggested that real-time channels, such as live chat or phone calls, are more effective, enabling quicker issue resolution. Srinivasan *et al.* (2019: 78) observed that pick-up services for high-value items are underutilised due to additional costs and perceived inefficiencies, as consumers often prefer direct interaction with retailers for trust and satisfaction.

Sethuraman *et al.* (2005: 74) noted that recommendations are less prevalent for low-involvement products like groceries due to their commoditised nature. Ailawadi *et al.* (2008: 115) found that grocery shopping habits are driven by trust, convenience and consistent quality. Bell *et al.* (2011: 74) further highlighted the influence of pricing strategies and promotions on grocery loyalty, suggesting that intrinsic factors are not the sole drivers.

Social media engagement for groceries is limited compared to high-value items (Smith *et al.* 2012: 83). Schau and Gilly (2003: 387) noted that sharing grocery purchases often reflects cultural or social experiences rather than individual product appeal. For returns, convenience and immediacy are critical for groceries, especially perishables (Uncles *et al.* 2013: 48). Kim *et al.* (2019: 62) observed that concerns about quality and the need for instant refunds drive in-store returns, while Ramanathan *et al.* (2014: 24) argued that email or online forms are more effective for routine interactions. While pick-up services are increasingly adopted in urban areas for convenience (Bell *et al.* 2011: 74; Bailey and Seock 2021: 43) found that logistical challenges and additional fees limit their widespread use for low-value items.

Omnichannel Retailing and Shopper Behaviour

In omnichannel retailing, consumers engage with brands across multiple touchpoints, requiring an integrated approach to post-purchase support. Seamless interactions, including easy returns and responsive customer service, are essential to creating a satisfying post-purchase experience. Rintamäki *et al.* (2021: 585) emphasised that efficient systems for handling returns significantly enhance consumer satisfaction and loyalty.

Understanding shopper behaviour is critical in omnichannel retail, where integration of online and offline channels is key. Scholarly discourse has increasingly shifted from consumer behaviour to shopper marketing, emphasising the dynamic interplay between online and offline shopping experiences (Smith and Brynjolfsson 2001 and Verhoef *et al.* 2015). This transition reflects the active role of shoppers in addressing purchase needs and evaluating retailers based on perceived value, specialisation, merchandise quality, availability and convenience.

Shoppers' motivations, ranging from practical needs to aspirations for socialising or enhancing self-esteem, are influenced by both conscious and unconscious factors such as emotions, values and past experiences (Dholakia *et al.* 2010: 86). Thus, understanding shopper behaviour across

diverse channels is vital for retailers aiming to foster long-term customer engagement and loyalty in the omnichannel retail environment.

4.6 JUSTIFICATION OF CHOICE

Due to its applicability and relevance, the researcher chose the traditional five-stage consumer decision-making process as the foundation and framework for this study. The researcher selected this theory for its comprehensive nature and suitability for the omnichannel retail environment. This choice allowed the researcher to conduct a holistic analysis of consumer interactions across various channels, essential for understanding how consumers transition between online, offline and mobile environments in an omnichannel context. Previous studies in omnichannel retailing, such as those by Shen, Li, Sun and Wang (2018: 62), Zhang Ren, Wang and Him (2018b: 181) and Kang (2018: 146) employed various theoretical frameworks like the Wixom and Todd model, the Stimulus-Organism-Response model and the EKB model to examine factors influencing consumer decision-making, these studies primarily focused on isolated psychological dimensions. They concentrated on specific cognitive, affective and behavioural aspects rather than offering a full-spectrum analysis of the consumer journey (Galipoglu, Kotzab, Teller, Yumurtaci Hüseyinoglu and Pöppelbuß 2018; Juaneda-Ayensa *et al.* 2016; Kazancoglu and Aydin, 2018; Perannagari and Chakrabarti 2019).

There is a notable gap in the literature. Mishra, Singh and Koles (2020: 10) identified a need for more research that captures the entirety of consumer emotional, cognitive and behavioural processing throughout the omnichannel retail experience. Although researchers have employed models like Kolbe's Cognitive-Affective-Conative (CAC) model to explore consumer decision-making, these models often focus on isolated stages of consumer psychology and fail to account for the interconnectedness of these dimensions throughout the entire decision-making process. For instance, Kang *et al.*'s (2018: 147) work on the "cognitive to affective" and "affective to conative" categories illustrates that existing studies tend to segment the consumer journey into separate steps rather than treating it as an integrated, continuous process.

By utilising the traditional five-stage consumer decision-making process, this study offers a holistic framework that encompasses all critical stages of the consumer journey, including problem recognition, information search, evaluation of alternatives, purchase and post-purchase behaviour. This model allows for a broader analysis, integrating cognitive (thinking), affective (feeling) and behavioural (doing) aspects across each stage. Such an approach is particularly

relevant in omnichannel retail, where consumers often engage with multiple channels simultaneously, requiring a more thorough understanding of their actions across various touchpoints.

Furthermore, the five-stage model effectively synthesises the emotional and behavioural aspects influencing consumer decisions. It helps us understand how consumers shape their cognitive evaluations (such as information search and alternative evaluation) through their affective responses (like emotional reactions during decision-making), leading to behavioural outcomes (such as purchase decisions and post-purchase behaviour). This comprehensive perspective not only builds upon the work of researchers like Park, Stoel and Lennon (2008: 73) and Chitty, Barker, Valos, Shimp and Chitty (2011: 103) that highlighted the interplay of cognitive, affective and conative dimensions but also extends existing frameworks by analysing how these dimensions operate within the broader omnichannel retail setting.

In omnichannel retail, the distinction between consumer and shopper becomes significant. A "shopper" may start their journey online, browsing reviews, before visiting a store to complete their purchase. This complexity requires retailers to consider how shoppers move between touchpoints and ensure a seamless experience throughout the journey. Therefore, marketers need to understand the role of each channel in influencing shopper behaviour and provide consistent, integrated messaging and service across all touchpoints.

In addition, while traditional marketing focuses on consumer behaviour, primarily examining individual preferences, modern retailing now emphasises shopper behaviour. Shopper behaviour explores the actual purchasing process, where consumers actively evaluate options, visit various channels and engage in the purchase. This approach is particularly relevant in omnichannel retailing, where shoppers interact with multiple channels (both online and offline) before making a purchase decision.

Hence, the traditional five-stage consumer decision-making model provides a more structured and inclusive framework for understanding consumer behaviour in omnichannel environments. By integrating all stages of the decision-making process, this model fills the gaps identified in previous studies, offers a richer understanding of how consumers navigate complex omnichannel retail landscapes and provides a sense of shopper behaviour in South Africa's omnichannel retail environment.

Omnichannel retailing, which integrates digital and physical touchpoints, adds complexity to shopper behaviour. Consumers today do not shop linearly but move fluidly between online and offline environments. For example, a shopper might check product reviews on a mobile device, purchase the product online and return it in-store if necessary. Ndlovu (2023) highlights South African online shoppers' challenges in returning products, pointing to insufficient return policies, ineffective communication and ambiguous procedures as primary obstacles. Hence, retailers must align their omnichannel strategies to reflect these consumer habits, ensuring that marketing messages, product availability, pricing and customer support remain consistent across all platforms. In this context, understanding shopper behaviour becomes critical for success. Retailers must focus on omnichannel personalisation, where customer data from various channels is analysed to tailor experiences. For instance, retargeting shoppers with relevant advertisements after visiting an online store or offering personalised discounts based on browsing history can help guide them back to the purchase phase. Ensuring that the entire experience, from browsing to post-purchase, is cohesive and frictionless can significantly affect conversion rates and customer loyalty.

By combining technology-oriented constructs (AI, social media) with psychological and behavioural constructs (perceived risks, shopper behaviour stages), the study captures the interplay between external, situational factors and internal, motivational and perceptual factors. This dual focus reflects the multidimensional nature of omnichannel shopping in the 4IR, where consumer decisions are influenced by both the available tools and consumers' perceptions of using them.

The theoretical integration is deliberate:

- TRA and TPB provide the backbone for understanding attitudes, social influence, and perceived control.
- SDT explains motivational drivers underpinning engagement and loyalty.
- Situated Cognition Theory contextualises these factors within the real and virtual environments in which shopping occurs.

Together, these theories not only justify the choice of constructs but also enable a holistic analytical model capable of explaining variations across high- and low-involvement product categories in South Africa's evolving 4IR retail sector. Kindly refer to Appendix D for more information.

4.7 HYPOTHESES DEVELOPMENT AND THEORETICAL LINKAGES

The development of hypotheses in this study draws from the theoretical foundations outlined in earlier sections of this chapter, particularly the traditional consumer decision-making model (Kotler 2012: 183; Schiffman and Kanuk 2014: 555), as well as technology adoption frameworks including the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT) and the Theory of Planned Behaviour (TPB). Additionally, domain-specific literature on omnichannel behaviour, AI integration and social media influence is utilised to support each hypothesis.

This section presents the hypothesised relationships that form the basis of the study's conceptual framework. These relationships are explored across two product categories: smartphones (high-involvement) and groceries (low-involvement), recognising the differences in cognitive effort, decision-making complexity and channel usage patterns.

4.7.1 High-Involvement Product: Smartphones

- H1: Social media engagement significantly influences pre-purchase behaviour in omnichannel smartphone shopping.

Social media platforms are central to the information-gathering phase for high-involvement purchases. Consumers frequently engage with user-generated content, influencer endorsements and peer reviews, which help shape brand perceptions and narrow decision sets (Lemon and Verhoef, 2016: 70). Social media provides a trusted environment for information validation, aligning with TPB's construct of subjective norms and perceived behavioural control.

- H2: AI technologies significantly influence pre-purchase behaviour.

In the high-involvement smartphone journey, AI tools—such as recommendation systems, AR visualisation and innovative comparison platforms—assist in evaluating alternatives and reducing cognitive overload. These tools align with TAM's concept of perceived usefulness and ease of use and UTAUT's performance expectancy (Grewal et al., 2020: 89).

- H3: Pre-purchase behaviour significantly influences purchase behaviour.

The pre-purchase phase, marked by intense information search and evaluation, is critical in high-involvement contexts. Consumers make deliberate decisions before committing to a purchase, supporting the five-stage model and theories of rational consumer behaviour (Kotler and Keller 2016: 181).

- H4: AI technologies significantly influence purchase behaviour.
At the point of sale, AI enhances the transaction experience through personalised pricing, real-time availability updates and seamless omnichannel checkouts (e.g., app to store). These functions help bridge the gap between intent and action, enhancing channel continuity (Verhoef et al., 2015: 177).
- H5: Social media engagement does not significantly influence purchase behaviour directly.
Although social media supports awareness and brand familiarity, its direct impact on the purchase decision is limited in high-involvement contexts. Consumers may rely more on official sources, in-store experience and technical specifications during final decision-making (Godey et al., 2016: 5837).
- H6: Purchase behaviour significantly influences post-purchase behaviour.
Satisfaction with the transaction affects loyalty, word-of-mouth and continued engagement with the brand, especially in high-involvement purchases. Positive experiences strengthen brand commitment and reduce post-purchase dissonance (Oliver 1980: 467).
- H7: AI technologies significantly influence post-purchase behaviour.
Post-purchase AI applications—such as chatbots, usage guidance and warranty tracking—improve satisfaction and encourage repeat engagement. These technologies enhance perceived service quality and contribute to long-term brand relationships (Kumar et al., 2021: 548).
- H8: social media engagement significantly influences post-purchase behaviour.
Consumers often share product experiences, reviews and brand interactions post-purchase on social media. This contributes to e-wom, especially among tech-savvy consumers and reinforces the role of community-based feedback loops (Cheung and Lee 2012: 223).

4.7.2 Low-Involvement Product: Groceries

- H1: AI technologies significantly influence pre-purchase behaviour.
In grocery shopping, AI simplifies decisions through personalised offers, predictive carts and real-time promotions, especially in mobile apps. These features reduce effort and improve decision efficiency (Grewal et al., 2020: 89).
- H2: Social media engagement significantly influences pre-purchase behaviour.
Consumers use social media to discover recipes, coupons and recommendations for grocery planning. This engagement impacts brand recall and purchase intent (Lemon and Verhoef 2016: 73).
- H3: Social media engagement significantly influences purchase behaviour.
Flash sales, influencer promotions and in-app deals can drive quick grocery decision-making, where impulsivity and convenience often guide the transaction (Godey et al., 2016: 5837).
- H4: AI technologies significantly influence purchase behaviour.
AI tools like tailored pricing, cashier-less checkout and inventory alerts streamline the grocery purchase process and enhance conversion (Verhoef et al., 2015: 177).
- H5: Pre-purchase behaviour does not significantly influence purchase behaviour.
Habitual, heuristic decisions with limited evaluation characterise low-involvement shopping. Convenience typically outweighs extensive deliberation (Kotler and Keller, 2016: 181).
- H6: Purchase behaviour significantly influences satisfaction.
Efficient and convenient purchases—especially in omnichannel grocery platforms—are strongly linked to satisfaction, particularly where speed and accuracy are valued (Oliver 1980: 467).
- H7: Purchase behaviour significantly influences perceived distribution effectiveness.
Consumers assess fulfilment, availability and delivery reliability as part of their post-purchase evaluation, especially in online grocery settings (Grewal et al., 2020: 92).

- H8: AI technologies significantly influence satisfaction.
AI enhances satisfaction through post-purchase notifications, innovative loyalty programmes and personalised communications (Kumar et al., 2021: 548).
- H9: Social media engagement significantly influences satisfaction.
Post-purchase engagement through brand pages, feedback loops and customer service via social platforms contributes to perceived support and satisfaction (Cheung and Lee, 2012: 223).
- H10: AI technologies do not significantly influence perceived distribution.
While AI supports the frontend user experience, grocery retail's logistics and supply chain reliability remain human- and infrastructure-driven (Verhoef et al., 2015: 178).
- H11: Social media engagement slightly influences distribution perception.
Social updates (e.g., delivery notifications or stock alerts) may shape consumers' perceptions of efficiency but do not replace core operational fulfilment (Lemon and Verhoef, 2016: 74).

The hypotheses presented above form the basis for the conceptual framework and subsequent empirical analysis. By examining these constructs across different levels of product involvement, the study aims to uncover patterns of omnichannel consumer behaviour in South Africa's 4IR-driven retail landscape.

4.7.3 Construct labels

The constructs in this study were intentionally adapted from their original labels in the Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB) to ensure they reflected the uniqueness of omnichannel shopper behaviour in South Africa's Fourth Industrial Revolution (4IR) retail environment. This adaptation maintains theoretical integrity, as Podsakoff, MacKenzie and Podsakoff (2016: 165) emphasise that researchers must ensure conceptual clarity, meaning that construct labels should accurately reflect their underlying definitions and remain aligned with established theory, even when adapted for contextual or linguistic purposes.

From a practical relevance perspective, Lambert and Newman (2023: 2) contend that modifying theoretical constructs to suit the specific realities of the research context not only aids comprehension among industry practitioners but also improves the measurement's validity in applied settings, such as retail environments with distinct cultural, economic, and technological characteristics.

Furthermore, in line with best practice in scale adaptation, Vitari and Pillet (2023: 5) notes that altering existing measurement scales, including the wording or labels of constructs, is a common and accepted approach in social science research, provided that the theoretical meaning remains intact and construct validity is assessed. In this study, such adaptations were made to ensure the constructs were both theoretically sound and contextually meaningful for South African omnichannel retail stakeholders.

4.8 SUMMARY

Consumer decision-making has evolved significantly with the rise of digital technology and omnichannel retailing. Each stage (need recognition, search for information, evaluation, purchase and post-purchase behaviour) involves a series of complex interactions across multiple touchpoints. For marketers aiming to build lasting brand loyalty and drive conversions, understanding how to engage consumers effectively throughout this journey, especially within the omnichannel framework, is crucial.

CHAPTER FIVE: RESEARCH METHODOLOGY

5.1 INTRODUCTION

The previous chapter discussed the literature review, while this chapter presents the research approach used for this study. In addition to being methodical and chronologically ordered, the research must consistently adhere to the researcher's pattern of work, understand and justify each action taken, provide sufficiently accurate data and guarantee that the data is detailed in its description and precise in its analysis.

Consequently, this chapter explains the steps followed in conducting the research. It describes research and discusses the steps in the research process that guide it. Hence, the chapter emphasises the research techniques used in this study.

5.2 RESEARCH PHILOSOPHY

D'Alessandro, Winzar, Lowe and Zikmund (2020: 96) assert that research philosophy focuses on shaping and defining the essence of knowledge. Aytekin (2024: 98) elaborates that research philosophy encompasses three primary scientific paradigms grounded in assumptions (ontology), the understanding of knowledge (epistemology) and the conduct of research (methodology). Consequently, positivism (quantitative) and interpretivism (qualitative) emerged as the principal research philosophies.

Datt and Chetty (2016: 1) suggest that a research strategy aims to enable researchers to address research enquiries effectively. Datt and Chetty (2016: 1) further contend that the research strategy guides and moulds the research framework in alignment with the study's goals and objectives. Similarly, Mishra (2023: 37) elucidates that selecting a research strategy is contingent upon the research questions, aims and objectives. Additionally, Dubey and Kothari (2022: 9) underscore that factors such as time constraints, available knowledge and resources influence the research strategy. Wiid and Diggins (2021: 70) outline three research approaches: qualitative, quantitative and mixed methods.

The term research takes on different meanings in each discipline. However, consistently, across the various disciplines and among experts, the function of research is to use multiple methods to find answers to research questions (Kumar 2019: 9). Saunders, Lewis and Thornhill (2019: 6)

describe research as a structured and systematic process aimed at gaining knowledge. Leedy and Ormrod (2021: 250) emphasise that research follows a recurring cycle, beginning with identifying a problem or unanswered question. This process includes defining the research objective, breaking down the main issue into smaller components, proposing a hypothesis, designing a strategy to address the problem, collecting and organising data, analysing the findings and ultimately interpreting the results.

Wiid and Diggins (2021: 8) explain that, according to the American Marketing Association, research plays a key role in marketing by linking consumers, customers and the broader public with marketers. It supports the identification and analysis of marketing opportunities and challenges, helps refine marketing strategies, monitors performance and deepens the understanding of marketing practices (American Marketing Association 2021: 1).

In this study, the researcher employed a **quantitative research approach**, which aligns with the **positivist research philosophy**. This philosophy assumes that reality is objective and can be measured through observable and quantifiable data. The quantitative method was chosen because the study aimed to test hypotheses and identify patterns or relationships between variables using statistical analysis. Structured questionnaires were distributed to collect numerical data from a large sample, allowing for generalisation of the findings to a broader population. This approach was suitable for addressing the research questions and objectives, as it provided measurable evidence to support the study's conclusions. The decision to use a quantitative strategy was also influenced by factors such as time constraints, available resources and the need for a systematic, replicable research process, as supported by Dubey and Kothari (2022: 9).

Table 5.1 presents a few noteworthy definitions.

Table 5.1 Definitions of Research in Marketing

Definition	Source
Research involves planning, gathering and analysing data to provide management insights for making informed marketing decisions.	McDaniel and Gates (2020: 2).
Research is an apparent search for answers to research questions and the findings lead to strategic and tactical marketing decisions.	Nargundkar (2020: 5).
Research is a process executed to solve a particular marketing problem. It consists of designing, collecting, analysing and reporting information.	Burns and Veeck (2020: 35).
Research gathers, analyses and communicates data to aid marketing decision-making.	Wilson (2019: 12).
Research is a rigorous process of gathering correct data by finding, collecting and analysing it to improve decision-making by recognising and resolving marketing problems and opportunities.	Malhotra (2020: 32).

Table 5.1 provides several definitions of research and its practical application in the business environment. According to Table 5.1, research is a transparent strategic process used by various stakeholders that entails identifying, designing, searching, collecting, analysing, interpreting and reporting data to solve a specific marketing problem or phenomenon and make informed marketing decisions.

5.3 THE RESEARCH PROCESS

Research is a systematic procedure with several processes to gather pertinent data for sound business judgements. The steps are formed linearly for quantitative research (Flick 2020: 105). These steps include, but are not limited to, collecting, analysing, interpreting, transforming data into tables, graphs and charts and reporting on the findings. Figure 5.1 illustrates the steps in the research process followed for this study. The research process used included sixteen steps adapted from several authors.

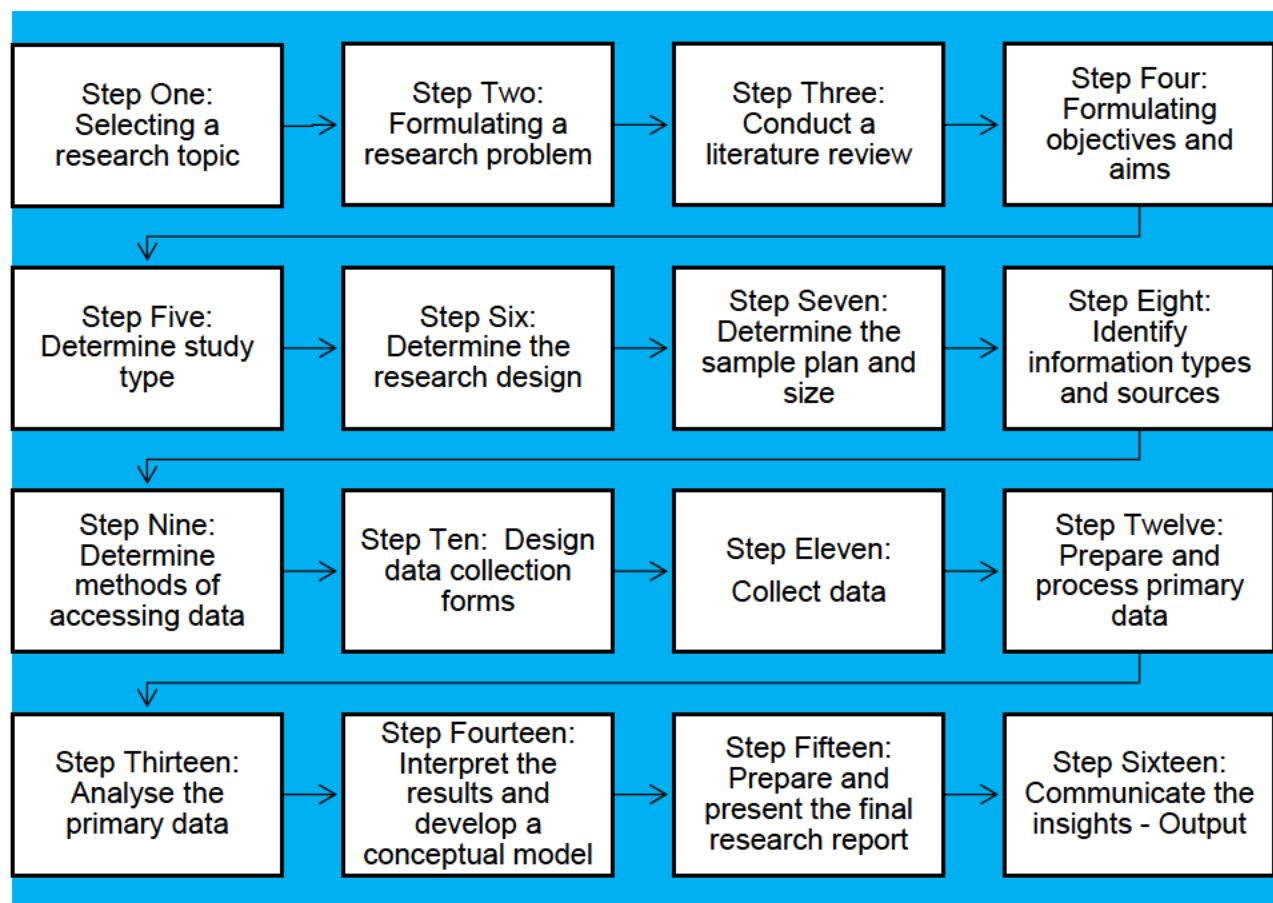


Figure 5. 1 The stages in the research process

Source: Adapted from Struwig and Stead (2013: 22); Wiid and Diggines (2021: 46); Burns and Veeck (2020: 68) and Burns, Veeck and Bush (2017: 68).

5.3.1 Step One: Select the research topic.

Cooper (2019: 77) states that the first step in the research process is to investigate a topic. This can be done by reviewing both conceptual and empirical literature, which helps to shape ideas and identify key themes. Engaging with existing literature also supports the development of a deeper understanding of the subject. According to Gray (2020: 47), selecting a topic that sparks genuine interest is vital, as it leads to a significant investment of time in the planning, design and execution of the research.

Characteristics of a good research topic

A good research topic should possess several qualities, including:

- Demand for research in a particular area or field.
- Availability of research methodologies to cover the topic.
- Setting reasonable deadlines.
- Choosing a topic that has not been extensively investigated, focusing on areas where additional research and knowledge are required.
- A topic that piques the researchers' interest (Struwig and Stead 2013: 48).

The research topic was formulated first for this study. The topic was researched and it was noted that limited research has been conducted in South Africa regarding omnichannel shopping behaviour in the 4IR. Mishra, Singh and Koles (2020: 19) supported this statement, noting that research has predominantly focused on industrialised countries, with little attention given to emerging markets. Hence, the research topic of omnichannel shopper behaviour in the emerging South African 4IR environment was appropriate for this study. In addition, the research area piqued the researcher's interest. To justify the relevance and uniqueness of the topic, the researcher conducted a preliminary literature review using scholarly databases such as Google Scholar, EBSCOhost and ScienceDirect. This process involved identifying key themes, gaps and patterns in existing literature, particularly within the context of omnichannel retail and the Fourth Industrial Revolution. Specific keywords such as *"omnichannel shopping behaviour," "4IR,"* and *"South Africa retail sector"* were used to narrow the focus and ensure alignment with the study's aim. The scarcity of region-specific studies, especially those addressing technological advancements and evolving consumer behaviours in South Africa, confirmed the need for research in this area. This systematic approach provided a strong foundation for the study and ensured that the chosen topic was timely, relevant and researchable within the available timeframe and resources.

5.3.2 Step Two: Formulate a research problem

Identifying the research problem is a vital part of the research process. If the problem is vague or poorly defined, it can lead to unnecessary expenditure of time and resources. A clearly articulated research problem provides direction and focus for the entire study (Polonsky and Waller 2018: 116). It enables researchers to gather the precise data needed to address the issue effectively. According to Singh (2022: 26), reviewing relevant literature helps the researcher gain a better understanding of the problem. The process begins with outlining the general issue, followed by breaking it down into specific components. Once the research problem is clearly established, the

researcher can then focus on formulating the research objectives and designing the study accordingly (Malhotra 2020: 59).

Existing literature was used to identify the research problem for this study, highlighting the need for data on omnichannel shopper behaviour in South Africa during the Fourth Industrial Revolution. The research problem was discussed in Chapter One. To formulate this problem, the researcher conducted a comprehensive review of academic journals, industry reports and case studies focused on consumer behaviour, retail innovation and technological advancements associated with the 4IR. This literature review enabled the researcher to identify a notable gap in studies exploring how South African consumers engage with omnichannel retail strategies, which are commonly examined in more industrialised contexts. Through this process, it became evident that while omnichannel retailing is gaining traction globally, limited empirical data exists regarding its adoption and impact in emerging markets like South Africa. The researcher systematically analysed themes and patterns in existing work, which allowed for the development of a well-defined and context-specific research problem. The problem was then broken down into manageable components, guiding the formation of the study's objectives and shaping the research design. This methodical approach ensured that the research problem was relevant, researchable and clearly aligned with the study's aims.

5.3.3 Step Three: Conduct a literature review

As previously noted, conducting a comprehensive review of the literature is essential for enhancing the clarity and depth of understanding of the research problem (Wiid and Diggines 2021: 81). This review encompasses a historical examination of relevant theoretical frameworks and prior empirical studies, with a particular emphasis on literature directly related to the research topic. Furthermore, the literature review serves to substantiate the central argument or proposition of the thesis by drawing upon evidence and insights from recognised experts and scholars within the field. According to Creswell et al. (2020: 28), it also equips the researcher with pertinent contextual and conceptual background necessary for framing the research problem. In addition, for the literature review to be both rigorous and effective, it is imperative that the researcher engages in a critical analysis, evaluation and synthesis of existing theories and scholarly works that are closely aligned with the study's focus (Efron and David 2019: 2).

The researcher compiled the literature for this study using secondary research and gathered an extensive review (Chapters Two, Three and Four) from several academic sources. To achieve

this, the researcher followed a systematic approach to identify, select and analyse relevant literature aligned with the research problem. Academic databases such as Google Scholar, EBSCOhost, JSTOR and ScienceDirect were used to locate peer-reviewed journal articles, textbooks, online academic publications and reputable industry websites. Keywords including "omnichannel retailing," "Fourth Industrial Revolution," "digital marketing," "consumer behaviour," "social media," and "technology adoption in South Africa" were employed to narrow the search and ensure topic relevance.

The researcher critically evaluated and synthesised the selected literature to identify patterns, themes and research gaps. This process involved comparing different theoretical perspectives, methodologies and findings from previous studies to develop a coherent understanding of the current state of knowledge in the field. As a result, core constructs such as artificial intelligence, social media influence, perceived risks and the stages of shopper behaviour (pre-purchase, purchase and post-purchase) were identified based on their relevance to omnichannel shopping in the 4IR context.

The literature review was structured across three chapters to provide a comprehensive overview: Chapter Two addressed the overview of retailing and retailing in South Africa, also discussing the evolution of omnichannel; Chapter Three explored the industrial revolution; and Chapter Four focused on consumer behaviour and the theoretical foundations. Importantly, insights gathered from the literature directly informed the development of the primary data collection instrument (questionnaire) by guiding the selection of constructs and the formulation of specific questions. This ensured that the instrument was conceptually grounded and aligned with both the research problem and objectives.

5.3.4 Step Four: Formulating objectives and aims

After formulating and precisely stating the research problem, the researcher should establish the research objective and indicate the study's primary purpose. The phrase 'objectives should be S.M.A.R.T serves as a guiding principle in this process.

Objectives should be:

- Specific—being transparent about the research's intended course of action.

- Measurable—ensures the researcher can determine when their objective has been met.
- Attainable—avoid overly ambitious, goals to complete and instead set realistic and achievable goals.
- Realistic—the researcher should have the resources (time, money and talents) to execute the study objective.
- Time-constrained—the researcher should establish the deadlines for each stage.

Therefore, the researcher must consider whether there is space in the timeline to account for unforeseen delays (Polonsky and Waller 2018: 116). This research study aimed to critically analyse the nature of omnichannel shopper behaviour in the emerging South African 4IR environment.

The research objectives are:

1. To describe the omnichannel shopper behaviour in the emerging Fourth Industrial Revolution in South Africa.
2. To determine the 4IR emerging trends in omnichannel retailing.
3. To analyse shopper behaviour on social media platforms.
4. To analyse omnichannel shopper behaviour on high- and low-involvement products.
5. To propose an omnichannel shopper behaviour model for South Africans in the emerging Fourth Industrial Revolution.

5.3.5 Step Five: Determine the study type

Researchers can approach research using qualitative, quantitative, or mixed-method study types. The proceeding paragraphs discuss each type in more detail.

5.3.5.1 Interpretivist (Qualitative research)

Interpretivism focuses on human behaviour and how individuals interpret the world through shared experiences and language, suggesting that they construct reality socially. Human actions influence science (O'Donoghue 2018: 60). It posits that researchers, as subjective beings, are part of the observed world, making objectivity unattainable (Cooper and Schindler 2014: 60). Despite this, interpretivism offers benefits such as increased validity and authenticity in research findings due to the natural observation of phenomena in real-life settings, facilitating a more profound understanding (Malhotra 2020: 97). However, Rosenthal (2018:19) cautions that interpretivist research may suffer from researcher subjectivity and unreliable findings, with

potential for different conclusions among researchers observing the same phenomena simultaneously. Qualitative research is often unstructured or semi-structured research involving gathering, analysing, interpreting and observing people's actions. In qualitative research, non-numerical data must be collected and evaluated (e.g., text, video, or audio). Qualitative data might help researchers fully comprehend a topic or provide new research concepts. Most of the time, qualitative research gives essential information on interpersonal connections.

5.3.5.2 Positivism (Quantitative research)

Positivist research employs quantitative methods, utilising numerical data and statistical analysis to investigate social phenomena (De Vaus 2013: 6). According to Bhattacharjee (2012: 129), positivism regards reality as measurable rather than observable. It asserts that the social world exists externally and advocates objective measurement over subjective inference (Bhattacharjee 2012: 129). Positivism arose as a response to metaphysical speculation, prioritising objectivity and the replicability of findings (Bhattacharjee 2012: 129).

Quantitative research involves the systematic and objective analysis of numerical data derived from a specific subset of a broader population or universe (Wiid and Diggins 2021: 184). As noted by Hammersley (2013: 12), quantitative research pertains to information that can be measured or calculated in some form, a view echoed by Stockemer (2019: 8). In essence, it centres on numerical data, employing mathematical methods, statistical techniques and computational tools to quantify phenomena or investigate characteristics within a target population. Research associated with the Fourth Industrial Revolution (4IR) predominantly adopts a quantitative approach, drawing data from sources such as social media platforms, sales metrics and web traffic. However, this approach often lacks the depth required to explore or interpret complex social constructs effectively.

This study chose **quantitative research** as its primary methodology because it can objectively measure and analyse social phenomena using numerical data and statistical techniques. A **positivist paradigm** was adopted, which aligns with the study's objective to investigate the measurable impact of the Fourth Industrial Revolution (4IR) on consumer behaviour in South Africa. Under this paradigm, reality is considered objective and external and knowledge is acquired through observation and measurement rather than subjective interpretation (Bhattacharjee 2012: 129).

To implement this approach, the researcher **designed a structured questionnaire** as the primary data collection instrument. The questionnaire consisted predominantly of **closed-ended questions**, including Likert-scale items, multiple-choice questions and ranking questions. These were carefully constructed based on themes and constructs identified through the literature review, such as **social media engagement, technological influence, online shopping behaviours** and **consumer decision-making processes**.

The questionnaire was **distributed electronically using an online survey tool**, which allowed for broader reach and accessibility, particularly given the digital nature of the study's context within the 4IR. The responses were collected from a **sample representative of South African consumers**, ensuring diversity in demographics such as age, gender, income and digital access. Once the data was gathered, it was **analysed using statistical software (SPSS)**. **Descriptive** statistics were used to summarise data, while **inferential statistics** helped identify correlations and trends between variables, such as the relationship between social media usage and purchasing behaviour. This process enabled the researcher to interpret the data objectively and test hypotheses based on empirical evidence.

The quantitative method was chosen not only for its alignment with positivism but also because it allowed the researcher to handle large volumes of data efficiently and produce generalisable, statistically significant findings. These findings offer insight into broader trends in consumer behaviour influenced by the 4IR, thus contributing meaningfully to the academic and practical understanding of this evolving digital landscape.

5.3.5.3 Mixed method

Creswell (2014: 42) explains that the mixed-methods approach combines elements of positivism and interpretivism. This approach acknowledges and evaluates the strengths and weaknesses derived from solely adopting a positivistic or interpretivist perspective in research.

Kumar (2019: 89) suggests that the mixed methods approach integrates qualitative and quantitative methodologies and is often employed to validate results, resolve discrepancies, or generalise qualitative findings. McGivern (2021: 339) contends that the mixed methods approach is more intricate than singular methods due to its time-consuming nature and challenges in seamlessly blending qualitative and quantitative findings. Despite its complexities, Creswell (2014: 42) acknowledges the mixed methods approach's ability to comprehensively understand

research problems, validate findings and leverage the strengths of both qualitative and quantitative approaches.

However, in certain situations, it may be beneficial for the researcher to use multiple research methods; thus, qualitative and quantitative methods can be used (Wiid and Diggines 2021: 103). Hence, mixed-method research uses qualitative and quantitative study types.

The selection of a positivist (quantitative) research approach in this study is both methodologically sound and strategically justified, aligning directly with the aim of generalising findings on omnichannel shopper behaviour among South African consumers in SEM categories 6–10. Unlike interpretivist approaches, which struggle with generalisability, the positivist paradigm leverages structured data collection and statistical analysis to produce results that reflect broader population trends (Saunders et al., 2019: 148). Survey research, an essential tool within the positivist framework, was particularly apt, as it enables efficient, cost-effective data collection from large samples, a critical need for this study (Pham, 2018: 2; Hammersley, 2013: 23). As Sekaran and Bougie (2019: 147) emphasise, surveys are ideal for examining behavioural patterns across large populations, allowing the researcher to capture measurable variables like technology use, income level and shopping preferences. This facilitated the generation of statistically robust, generalisable insights into omnichannel shopping behaviour. Babin and Zikmund (2016: 113) and Burns, Veeck and Bush (2020: 133) further affirm that quantitative methods offer speed, scalability and analytical clarity, making them superior for studies aiming to identify trends and test hypotheses across wide demographic segments. Thus, the choice of a quantitative method was not only appropriate but critical for the success and credibility of this research.

5.3.6 Step Six: Determine the research design

A research design is a theoretical framework for conducting research. It serves as a guide for gathering, measuring and analysing data and it summarises the research plans (Kumar 2019: 154). Leavy (2022: 101) defines a research design as the overall blueprint of a study, outlining how data will be collected, analysed and subsequently interpreted, including the identification of participants. Several authors (Nargundkar 2020: 22; Hair, Page and Brunsveld 2019: 162 and Malhotra 2020: 93) agree that researchers select from the five research design types, namely:

- Explanatory research
- Exploratory research
- Descriptive research

- Causal Comparative
- Correlational research.

The preceding paragraphs discuss these research design types in more detail.

5.3.6.1 Explanatory research

Malhotra (2020: 151) posits that explanatory research designs are suitable for studies to establish and elucidate causal relationships between the investigated variables.

5.3.6.2 Exploratory research

Saunders *et al.* (2019: 187) suggest that exploratory research designs are employed when researchers lack certainty or have a limited understanding of the research phenomenon. Leedy and Ormrod (2021: 17) highlight the flexibility and adaptability of exploratory research designs.

5.3.6.3 Descriptive research

Leavy (2022: 165) notes that descriptive research designs provide pertinent information about the studied population. This design requires a clear understanding of the phenomenon before actual data collection.

5.3.6.4 Causal-comparative research

According to McGivern (2021: 47), causal-comparative research aims to determine the relationship between independent and dependent variables after an event. Salkind (2022: 124) emphasises comparing groups or individual variables to assess the impact of the independent variable on the outcome.

5.3.6.5 Correlational research

Correlational research designs seek to establish relationships between variables within the same population or between variables in two populations (Curtis, Comiskey and Dempsey 2016: 2). Price, Jhangiani and Chiang (2015: 130) highlight the lack of researcher control over measured variables, which prevents the manipulation of outcomes.

i. **Research design for this study**

The adoption of a **descriptive research design** in this study was a methodologically robust and contextually grounded choice, effectively aligning with the overarching aim of systematically capturing and analysing the multifaceted behaviours, attitudes and preferences of South African shoppers engaging in omnichannel retail within the Fourth Industrial Revolution (4IR) landscape. Descriptive research is particularly suited to studies that seek to identify and quantify the characteristics of a population, providing detailed snapshots of behavioural patterns and the variables that shape them. As Burns and Bush (2014: 103) argue, this approach is instrumental in exploring consumer traits such as attitudes, preferences, intentions and demographic dimensions that were central to this study's investigation into digital readiness, social media usage and technological engagement. In a rapidly evolving retail ecosystem influenced by technological convergence, a descriptive design enabled the researcher to draw empirically grounded insights into how consumers interact with various digital and physical shopping channels, offering both breadth and depth in understanding omnichannel behaviour.

Operationally, the structured, self-administered questionnaire served as the primary instrument for data collection, a deliberate choice to ensure standardisation, reliability and scale. The questionnaire was carefully designed with closed-ended questions, drawing on Likert scales and multiple-choice formats, to quantitatively assess constructs such as channel-switching behaviour, trust in digital platforms, purchasing frequency and the influence of social media. This structured format allowed for consistency in data capture while facilitating efficient statistical analysis through descriptive techniques such as means, frequencies and cross-tabulations. The electronic distribution of the survey further enhanced its accessibility, enabling broad demographic reach and rapid response turnaround. To mitigate threats to validity and reliability, common challenges in survey research, the researcher conducted a pilot test and provided clear instructions to reduce ambiguity and respondent error. Ultimately, this design enabled the development of a statistically sound understanding of consumer engagement with omnichannel platforms, producing insights that are not only empirically robust but also generalisable to other emerging market contexts undergoing similar digital transformations.

ii Longitudinal

A longitudinal study tracks the same variables over time, allowing researchers to see the issue and its evolution (Malhotra 2020: 98).

iii Cross-sectional

In contrast, a cross-sectional study includes sampling a population of interest at a single moment in time (Stevens, Loudon, Ruddick, Wrenn and Sherwood 2012: 38). Hall (2008: 1) notes that cross-sectional methodology is inexpensive and the most common study design utilised in most research. The researcher used cross-sectional methods because they conducted the research at a specific time.

5.3.7 Step Seven: Determine the sample plan and size

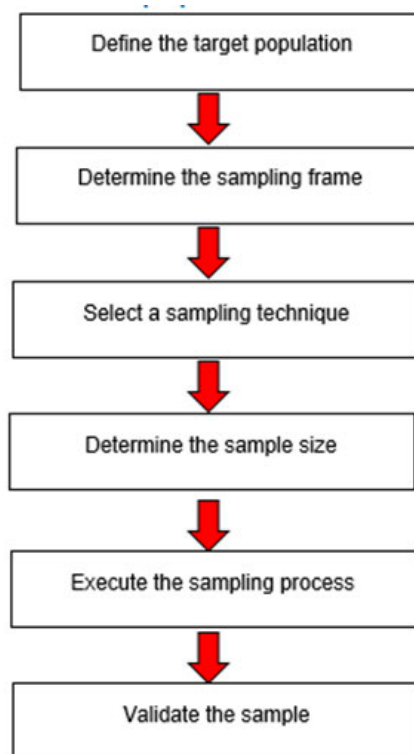


Figure 5. 2 The sampling design process

Source: (Nunan, Birks and Malhotra 2020: 408).

Researchers use sampling when they cannot practically study the entire population. As a result, a sample must be drawn from the entire population using a predetermined technique (Clow and

James 2014: 226). The researcher further discussed Figure 5.3 in the preceding paragraphs to explain the sampling design process.

Step 1: Define the target population

A target population is a population the researcher is interested in; it includes variables such as a group of individuals from which the researcher aims to study or obtain information (Wilson 2019: 221).

For this study, the target population comprised 428 South African omni-shoppers, who engage in both online and offline shopping channels, reflecting true omnichannel consumer behaviour. This group was selected to align directly with the research objective of exploring omnichannel shopper behaviour within the context of the Fourth Industrial Revolution (4IR) in South Africa. The inclusion of both online and offline shoppers ensures a holistic understanding of channel-switching behaviours, digital adoption and purchasing preferences, core constructs under investigation in this study.

Furthermore, the target population was narrowed to include individuals falling within Socio-Economic Measures (SEMs) 6 to 10, which represent middle to upper income groups in South Africa. This decision was methodologically sound for several reasons. Firstly, individuals in these SEM categories are statistically more likely to have consistent access to digital technologies, such as smartphones, internet connectivity and digital payment systems, key enablers of omnichannel shopping in a 4IR environment. Secondly, consumers in SEM 6 to 10 typically demonstrate higher levels of discretionary income, allowing for more frequent and varied retail engagement across multiple channels. Finally, this demographic is more likely to be digitally literate and socially connected, making them ideal participants for studying trends in digital marketing influence, social media engagement and tech-enabled shopping behaviour.

By focusing on this specific population, the researcher ensured that the data collected would be both relevant and reflective of the segment most actively participating in omnichannel shopping. This approach strengthens the study's internal validity and enhances the practical relevance of its findings for marketers, retailers and policymakers aiming to adapt to South Africa's evolving digital consumer landscape.

Step 2: Determine the sampling frame

According to Wu and Thompson (2020: 9), a list of sampling units is known as the sampling frame and could include email addresses or telephone numbers. A marketing research firm collected the data for this study using its consumer research panel database.

Step 3: Select a sampling technique

Due to the large population size, researchers cannot conduct research among all individuals within the population (Rose, Spinks and Canhoto 2015: 187). Clow and James (2014: 226) maintain that sampling is impractical when examining the entire study population. As a result, researchers must choose a sample from the entire population.

Consequently, researchers use sampling techniques. There are two basic categories of sampling techniques: probability sampling and non-probability sampling (Ferrell, Niininen, Lukas, Schembri and Pride 2014: 93). Figure 5.4 illustrates the different probability and non-probability sampling methods.

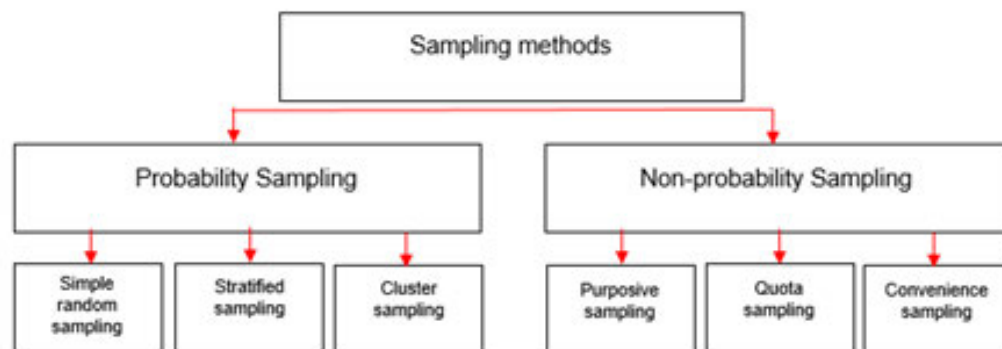


Figure 5. 3 Sampling Methods

Source: (Malhotra 2020: 340)

a. Probability sampling

The Equal Probability of Selection Method (EPSEM), commonly referred to as probability sampling, is a technique whereby every unit within the sampling frame has an identical likelihood of being chosen for inclusion in the sample. Methods that fall under probability sampling include simple random sampling, systematic sampling, stratified sampling and cluster sampling (Newby 2014: 237).

i. Simple random sampling

Conversely, simple random sampling represents a foundational technique utilised in the statistical analysis of social research (Babbie 2013: 209). This method ensures that every individual within the population possesses a known and equal probability, greater than zero, of being selected (D'Alessandro, Winzar, Lowe and Zikmund 2020: 347).

ii. Stratified sampling

In contrast, stratified sampling involves dividing the population into distinct subgroups, referred to as strata, wherein each stratum is internally homogeneous. This approach acknowledges that variation exists between the different strata once the population has been segmented. Subsequently, sampling units are independently drawn from each stratum to ensure representative coverage across the identified categories (Rajaretnam 2015: 18).

iii. Cluster sampling

Moreover, cluster sampling entails dividing the population into naturally occurring groupings, referred to as clusters or segments. In this approach, all units within the selected clusters are included in the sample. As the clusters themselves are chosen at random, cluster sampling is categorised as a form of probability sampling (Crano, Brewer and Lac 2015: 230).

b. Non-probability sampling

Researchers undertake non-probability sampling when they cannot identify any distinct possibility of selecting a specific element in the population. The researcher cannot calculate the sampling error that has occurred and does not know whether the resulting sample estimates are accurate (Feinberg, Kinnear and Taylor 2013: 304). When researchers need preliminary information quickly and cheaply, they use non-probability sampling. In some cases, non-probability sampling may be the only technique to acquire data. Availability sampling, purposive/judgemental sampling, snowball sampling and quota sampling are examples of non-probability sampling procedures (Sekaran and Bougie 2019: 233).

i. Purposive sampling

Purposive sampling, sometimes called judgemental sampling, is a special convenience sampling technique in which the researcher is aware of the features of the target group and looks for certain people in the sample who exhibit those traits (Ruel, Wagner and Gillespie 2016: 152).

ii. Quota sampling

Like stratified random sampling, quota sampling ensures that the demographic features of interest are represented in the same proportion as the population, according to Neelankavil (2015: 464). Quota sampling divides the population into groups depending on characteristics that may influence the value of the studied parameter (Dommermuth 2011: 19).

iii. Convenience sampling

Moreover, convenience sampling, or availability sampling, refers to selecting individuals in a sample for the researcher's convenience when participants are nearby and readily available (Dixon, Singleton and Straits 2016: 164 and Black 2012: 224).

The decision to **employ purposive sampling** in this study was grounded in both methodological rigor and pragmatic necessity, making it an appropriate and defensible choice for achieving the research objectives. The central aim of the study was to investigate the behaviour of omnichannel shoppers, consumers who actively navigate both online and offline retail environments, a subgroup that is specific, behaviourally defined and not evenly distributed across the general population. Traditional probability sampling techniques, while statistically robust, would have been inefficient and potentially ineffective for capturing data from this niche group, as they could include large proportions of respondents with limited or no relevant experience. Purposive sampling, as a non-probability method, enabled the researcher to deliberately select individuals whose behavioural profiles directly aligned with the study's scope, thereby ensuring the collection of contextually rich, targeted and meaningful data. This strategy enhanced the internal validity of the study, as it focused on respondents most capable of offering informed perspectives on omnichannel shopping in the context of South Africa's digital transformation.

Furthermore, practical constraints, including limited time, budgetary restrictions and the absence of a national sampling frame for omnichannel shoppers, reinforced the appropriateness of purposive sampling. As probability-based methods typically require access to an exhaustive and accurate list of the target population, their application in this context would have been both impractical and resource-intensive. By contrast, purposive sampling provided an efficient, cost-effective alternative, enabling the researcher to gather data from a strategically defined and information-rich subset of the population. To ensure transparency, credibility and demographic diversity, the researcher partnered with a professional market research firm that leveraged a validated panel of South African consumers. Panel members who met predefined screening

criteria, including active participation in both online and offline shopping, were invited to complete a structured questionnaire via electronic communication. This approach ensured methodological soundness while facilitating the inclusion of respondents reflective of the broader demographic and behavioural characteristics of interest. Ultimately, purposive sampling allowed the study to generate empirically grounded, insights into omnichannel shopper behaviour, balancing academic rigour with real-world feasibility.

Step 4: Determine the sample size

The final sample size of 428 respondents in this study was both methodologically justified and analytically appropriate, exceeding the minimum requirement of 385 respondents necessary for robust quantitative analysis. Guided by Sekaran and Bougie (2019: 249), who recommend a sample size between 30 and 500 for behavioural research, with a minimum of 300 deemed sufficient for complex multivariate analysis, this sample fell well within accepted academic parameters. In alignment with these recommendations and to ensure sufficient statistical power for Structural Equation Modelling (SEM), the researcher collaborated with a reputable market research firm that maintained a panel of over 3,000 South African consumers. Invitations to participate were sent to the entire database, targeting individuals who met the predefined screening criteria for omnichannel shopping behaviour. Following rigorous data cleaning procedures to eliminate incomplete or invalid responses, the final dataset comprised 428 usable cases, thereby enhancing the rigour and validity of the analysis.

This sample size was particularly well-suited to the analytical requirements of SEM, a sophisticated multivariate technique used to examine the relationships among multiple latent constructs, including social media engagement, 4IR technological factors and consumer behavioural patterns. As noted by Hair et al. (2019), SEM typically requires a minimum sample size between 200 and 400, depending on the model's complexity and estimation methods. The availability of 428 responses not only satisfied these requirements but also enabled the researcher to perform confirmatory factor analysis (CFA) and assess model fit with greater confidence. Moreover, the large and demographically diverse sample enhanced the generalisability of the findings across South Africa's middle to upper socio-economic consumer segments, particularly within the context of digital retail engagement. Thus, the sample size was not only statistically sound but also strategically effective in supporting the study's aim to produce reliable, valid and contextually meaningful insights into omnichannel shopper behaviour within South Africa's evolving 4IR environment.

Step 5: Execute the sampling process

The sampling process involves setting implementation parameters for the population, sampling unit, sampling frame, sampling technique and sample size (Malhotra, Baalbaki and Bechwati 2013: 70).

The sample plan for this study is summarised and presented in Table 5.2.

Table 5.2 Sample plan for the study

Population	Shoppers residing in South Africa who are aware of online shopping use both online and offline platforms for shopping (pre-purchase, purchase and post-purchase).
Sampling frame	No sampling frame was available, so the researcher employed a marketing research firm with consumer panels as a sampling frame.
Sampling element and unit	Shoppers who shop online, offline and use mobile channels and platforms.
Sampling method and technique	Non-probability sampling method, purposive sampling technique.
Sample size	428 respondents.

i. Inclusion

The study respondents included both online and offline shoppers, selected deliberately to capture the full spectrum of omnichannel shopping behaviour, a central focus of this research. By including individuals who engage across both physical and digital retail platforms, the study ensured a comprehensive and accurate representation of consumer behaviours in the South African 4IR retail environment. This approach was essential for examining how consumers navigate between multiple retail channels and how technological advancements influence these behaviours.

Respondents were further selected based on their Socio-Economic Measure (SEM) status, specifically targeting individuals within SEM levels 6 to 10. This demographic segment was purposefully chosen as it comprises middle- to upper-income consumers, who are more likely to have access to digital technologies, such as smartphones, internet connectivity and online banking, all of which are prerequisites for engaging in omnichannel shopping. These consumers are also more digitally literate and tend to exhibit higher levels of discretionary spending, making them more relevant to the investigation of 4IR-driven shopping patterns. Focusing on SEM 6–10

enhanced the relevance and contextual appropriateness of the findings, ensuring they reflect the behaviours of the consumer segment most engaged with omnichannel retail strategies in South Africa.

In addition, a fundamental inclusion criterion was the explicit consent of respondents to participate in the study. This ensured that all data were collected in accordance with ethical research standards, respecting participants' autonomy, privacy and right to informed decision-making. Prior to completing the questionnaire, respondents were provided with an overview of the study's purpose, the voluntary nature of participation and assurances of confidentiality and anonymity. This ethical protocol was implemented to uphold research integrity, in line with guidelines for responsible academic research involving human subjects.

Thus, the inclusion of online and offline shoppers within SEM 6 to 10, combined with the ethical requirement of informed consent, was both a methodologically strategic and ethically sound decision. It supported the study's goal of generating valid, relevant and ethically grounded insights into omnichannel shopper behaviour in the context of South Africa's evolving digital economy.

ii. Exclusion

The study strategically excluded several groups based on clearly defined criteria to maintain methodological rigour, ensure ethical compliance and preserve the contextual relevance of the research.

Firstly, individuals falling within SEM levels 1 to 5 were excluded to maintain the study's focus on middle- to upper-income shoppers (SEM 6 to 10), who are statistically more likely to have the resources, digital access and purchasing power necessary to participate in omnichannel retail environments. Lower SEM groups typically face barriers such as limited internet access, lower digital literacy and financial constraints, which would significantly reduce the likelihood of engaging in the multi-channel shopping behaviours central to this study. Excluding these groups enhanced the internal validity and focus of the research, ensuring alignment with the study's core objective: to examine how socio-economically advantaged consumers in South Africa engage with omnichannel shopping in the 4IR context.

Secondly, individuals under the age of 18 were excluded in accordance with legal and ethical guidelines surrounding research involving minors. In South Africa, minors require parental or

guardian consent to participate in research and such procedures introduce additional ethical complexities. Moreover, the shopping behaviours, motivations and digital engagement patterns of minors differ significantly from those of adults, which could have introduced variability and confounding variables inconsistent with the study's objectives.

Thirdly, all individuals who did not provide informed consent were excluded to ensure the study adhered strictly to ethical research protocols. Informed consent is a foundational principle in research ethics, safeguarding participants' autonomy and ensuring that participation is voluntary, transparent and informed. This exclusion criterion helped uphold the integrity and ethical accountability of the research process.

Lastly, the study excluded shoppers located outside of South Africa, as the research specifically aimed to analyse omnichannel shopper behaviour within the South African retail environment. Including international respondents would have introduced external variables such as differing economic conditions, retail infrastructure, technological access and cultural norms, factors that would compromise the study's ability to generate context-specific insights relevant to South Africa's unique 4IR landscape.

These exclusion criteria were therefore carefully considered and systematically applied to enhance the precision, ethical compliance and contextual relevance of the study, ensuring the findings are robust, focused and applicable to both academic inquiry and practical marketing strategies in South Africa.

Step 6: Validate the sample

The sample validation process seeks to account for sampling frame error by evaluating respondents throughout the data collection phase. To ensure that respondents fit the criteria for the target group, the researcher can screen them for various traits, including demographic characteristics and product expertise, among others. Screening benefits the researcher by removing undesired subjects from the sample frame (Nunan, Birks and Malhotra 2020: 411).

For this study, the researcher intentionally selected non-probability, purposive sampling as the most appropriate sampling method, given the specificity of the research objectives and the practical constraints of time and resources. This approach enabled the researcher to deliberately select respondents based on pre-established inclusion criteria, specifically, individuals falling

within Socio-Economic Measure (SEM) levels 6 to 10 who actively engage in both online and offline shopping channels. This subgroup was purposefully targeted because it represents the segment of the population most likely to participate in omnichannel retailing, which is the core focus of the study.

5.3.8 Step Eight: Identify information types and sources

i. Secondary information

Secondary data includes information someone else collects for purposes other than the current study (Babin and Zikmund 2016: 143). This data type can be found within an organisation, at a library (public or university), or on the internet. Examples of secondary data include records, reports, survey information and written texts such as journal articles and textbooks (D'Alessandro, Winzar, Lowe and Zikmund 2020: 20).

ii. Primary information

Gathering information takes two forms: 1) Primary and 2) Secondary. In this paragraph, the researcher briefly discusses primary information. For example, collecting primary information involves finding information first-hand based on consumer attitudes. Researchers use several methods to collect primary data, depending on the type of research, the study's purpose and their skills (Kumar 2019: 215).

For this study, the researcher collected both primary and secondary data to ensure a comprehensive and well-grounded understanding of the research problem. This dual approach was essential for both developing the theoretical framework and addressing the empirical research objectives.

Secondary data were collected first and served as the foundation for the literature review and conceptual framework. The researcher accessed a wide range of academic sources, including peer-reviewed journal articles, scholarly books, industry reports and credible online publications. These sources were retrieved from academic databases such as Google Scholar, EBSCOhost, ScienceDirect and JSTOR. The goal was to examine existing theories, identify gaps in the literature and understand previous findings related to omnichannel shopping behaviour, digital transformation in retail and the implications of the Fourth Industrial Revolution (4IR). This process

provided a theoretical grounding for the study, informed the development of research constructs and helped shape the primary data collection instrument.

Following the secondary data analysis, the researcher proceeded to collect primary data to address the study's specific research questions. A structured, self-administered questionnaire was developed based on the themes and constructs identified in the literature. The questionnaire was designed to capture quantifiable data on consumer attitudes, behaviours and experiences with omnichannel shopping in the South African 4IR context. It included closed-ended questions such as Likert-scale items and multiple-choice responses to allow for statistical analysis.

The questionnaire was distributed electronically through a marketing research firm, which administered it to a pre-screened panel of omni-shoppers within the defined target population (SEM 6 to 10). This ensured that respondents were relevant to the research and could provide meaningful insights based on their omnichannel shopping experiences.

This sequential and methodical approach to data collection, beginning with secondary research to inform the theoretical base, followed by primary research to test and apply findings, allowed the researcher to achieve depth, relevance and academic rigour in both the conceptual and empirical dimensions of the study. It ensured that the primary data were not only grounded in theory but also directly addressed the identified research gaps.

Step 8: Determine methods of accessing data

For this study, the researcher conducted secondary research using various academic sources to present the theoretical framework and an extensive literature review (Chapters Two, Three and Four). These scholarly sources included marketing journals (Journal of Retailing and Consumer Services, Journal of Electronic Commerce Research, Journal of Marketing, International Journal of Consumer Studies and Journal of Business Research), textbooks and internet sources (Bizcommunity; Business Tech and News24).

In addition, a self-developed questionnaire was used to collect primary information. The questionnaire was designed by the researcher and administered by a marketing research firm. The secondary information acquired from the literature review was combined to develop the primary research instrument used in this study.

This study used a questionnaire. The questionnaire was designed in Microsoft Word and scripted using specialised software (Dooblo SurveyToGo). Respondents could complete it electronically

using a laptop, desktop computer, tablet/iPad, or smartphone. A marketing research firm distributed the questionnaires to a sample of respondents.

Hence, this study targeted online shoppers (omni-shoppers), who use online and offline platforms during their shopping journey. The responses were completely anonymous, as the researcher requested no personal information. The marketing research company invited respondents to complete a questionnaire to gather information about the study's objectives.

5.3.9 Step Nine: Design data collection forms

Questionnaire

A questionnaire is a measuring instrument containing questions and statements for the respondent to complete so that the researcher can obtain information. The questionnaire is one element of the data collection process, which includes the fieldwork process, incentives offered to respondents and communication aids (Malhotra 2020: 319).

Questionnaire design

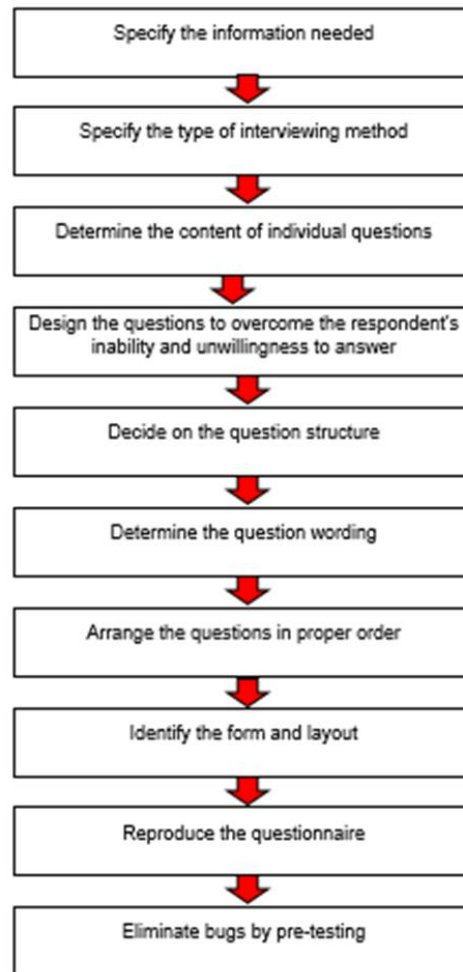


Figure 5. 4 Questionnaire Design Process

Source: (Malhotra 2020: 320).

Step 1: Specify the information needed

The characteristics of the respondent group significantly impact the questionnaire design. Therefore, it is crucial to understand the target population in depth. The socio-economic status of the responder affects how well they understand the questionnaire. A sizable portion of ambiguous or neutral responses is linked to inadequate comprehension. The more diverse the responder group, the more difficult it is to create a single questionnaire that works for everyone (Pride and Ferrell 2021: 111).

This study used socio-economic measures to measure respondents in the SEM 6 to 10 categories. The questionnaire was designed to ensure all respondents within those socio-economic categories could comprehend and provide effective responses.

Step 2: Specify the interview method

To understand the impact of the interviewing method on the questionnaire design, the researcher should evaluate how the questionnaire is administered for each method. Personal, telephone, mail, electronic and mobile questionnaires are a few examples (D'Alessandro, Winzar, Lowe and Zikmund 2020: 161).

For this study, the researcher used a self-developed questionnaire where items were adapted from various scholarly sources, kindly refer to Appendix E. The researcher employed a marketing research firm to administer the questionnaire in the format of a link that could be opened using a laptop, desktop, smartphone, or tablet/iPad. The researcher used a digital survey-based research company due to several advantages. Firstly, the company offers access to diverse participants, enhancing the sample's representativeness. Additionally, utilising digital surveys through consumer networks proves to be cost-effective compared to traditional methods, thereby reducing expenses associated with data collection.

Moreover, digital surveys enable efficient data collection, reaching a larger audience in a shorter time frame, which enhances the overall efficiency of the research process. Furthermore, consumer networks facilitate higher engagement rates among participants, leading to more reliable responses and data that ultimately improve the quality of the research outcomes. Overall, leveraging a marketing research firm presents significant benefits when it comes to participant diversity, cost-effectiveness, data collection efficiency and participant engagement, making it a compelling approach for conducting research (Sekaran and Bougie 2019: 215).

Step 3: Determine the content of individual questions

Every statement and question on a questionnaire should deliver the required data or serve a defined purpose. If a question cannot yield valuable information, it should be discarded. It is possible to ask questions unrelated to the required data. For instance, when the topic is delicate or contentious, beginning the questionnaire with a few neutral questions is best to foster rapport and engagement. Additionally, there is a chance that filler questions will occasionally obscure the goal (Beatty, Collins, Kaye, Padilla, Willis and Wilmot 2019: 35).

For this study, the questionnaire's content focused on the respondents' demographic profiles to perform a customer analysis. The content focused on the shopper's behaviour from pre-purchase to purchase and post-purchase, social media use during the shopping process and the risks associated with omnichannel shopping.

Step 4: Design questions that address the respondent's inability and unwillingness to answer.

It is impractical for researchers to assume that respondents will always provide truthful or accurate information in response to all statements and questions. The researcher needs to understand the reasons behind respondents' unwillingness to answer. However, several factors can limit respondents' ability to provide the required information. These factors include the possibility that respondents may be (1) unable to articulate certain types of comments, (2) illiterate, or (3) forgetful (Pew Research Centre 2022).

For this study, it was uncertain whether respondents were honest. Hence, the respondents could complete the questionnaire in the comfort of their homes or offices. Neither field workers nor the researcher were present, a marketing research firm administered the questionnaire online.

Step 5: Decide on the question structure

Two types of questionnaires are available: unstructured and structured. Open-ended questions are frequently included in unstructured questionnaires. Respondents can express their thoughts and opinions on a specific topic with these questions. At the same time, multiple-choice (which has three or more response categories), dichotomous (offers two possible answers) and scale questions (a scale of options from any range) are included in structured questionnaires (Creswell *et al.* 2020: 203).

The questionnaire was structured for this specific study and included multiple-choice, dichotomous and Likert scale measures.

Step 6: Determine the question wording

Question wording transforms the intended questionnaire's structure and content into understandable language for respondents. The most critical and challenging step in constructing a questionnaire is deciding how to phrase the questions. As a result, poorly worded questions may cause respondents to choose not to respond or respond incorrectly (Creswell *et al.* 2020:

201). Malhotra (2020: 330) lists the following suggestions to avoid some of the above-mentioned issues:

- First describe the problem first.
- The second tip is to speak plainly.
- Third, eliminate uncertainty.
- Fourth, stay away from leading queries.
- Fifth, remove implausible options.
- Sixth, avoid making implicit assumptions.
- Seventh, stay away from estimations and generalisations.
- Eighth, use both positive and negative comments on the point.

The questionnaire was written in simple English to ensure all respondents could comprehend them. No ambiguous language was used and no leading questions were asked. English was used as it is widely spoken and understood across South Africa, making it an accessible language for respondents from diverse backgrounds and regions.

Step 7: Arrange the questions in the proper order

Using the key questions can facilitate gaining respondents' trust and cooperation. The initial questions ought to be enticing, uncomplicated and non-threatening. In some circumstances, it may be necessary to qualify or screen respondents. This also helps decide if the respondent can participate in the study. The initial enquiries were pre-conditioned queries (Creswell *et al.* 2020: 200). Personal demographic questions were asked first, followed by the household demographic questions and then questions related to the study's objectives.

Step 8: Identify the form and layout

The structure and design of the questionnaire, including the font style, line spacing and placement of the questions, are crucial. The questions should be numbered in order, improving accessibility for coding analysis and field control of the questionnaires. Pre-coding the questionnaire is essential; the computer codes for data entry should be printed directly on the questionnaire. The numbering system makes it simple to keep track of the number of surveys and to identify any missing data.

This study's questionnaire was formatted using the specialised scripting software, Dooblo SurveyToGo. The font and line spacing were adequate to ensure respondents could read the questionnaire comfortably using devices with any form factor (e.g., a laptop, desktop, tablet, or smartphone). The questions and statements were numbered using the Arabic numbering system. The order of the questions started with simple, easy-to-answer questions that included biographical information. The next set of questions focused on low-involvement and high-involvement products. To avoid confusion among respondents, the researcher briefly introduced each questionnaire section. Thereafter, the researcher introduced the social media section and lastly, the section on risks.

Step 9: Reproduce the questionnaire

The questionnaire should be printed to make it easier to understand and fill out. A readable, bold font should be used whenever possible. How the questionnaire is reproduced for administration could impact the results. The instructions should be easy to understand and straightforward. Questions should be ordered in the correct sequence to avoid confusion, and the question wording should be appropriate (Creswell *et al.* 2020: 200).

For this study, in this modern digital world, the researcher chose not to use paper. The questionnaire was reproduced electronically using scripting software. The headings of each section were in bold font, making them legible to the respondents. A progression bar was available to notify respondents of how much more of the required questionnaire they needed to complete.

5.3.10 Step Ten: Eliminate bugs by piloting.

I. Pilot

Before conducting a more extensive study, the questionnaire is tested on a small sample of respondents to identify problems, such as unclear wording or a lengthy administration time. This process is known as the pilot (Brace 2018: 276).

A pilot study was conducted for this study; ten omni-shoppers who were not part of the main study were deliberately chosen to test the questionnaire. Aside from rectifying typographical mistakes and eliminating duplicated questions before the research, the pilot respondents proposed no additional modifications.

II. Final questionnaire

The following factors were taken into account when creating the questionnaire for this study: the secondary information gathered and discussed in Chapters Two, Three and Four; the standards established by comparable studies on subjects such as omnichannel shopping behaviours, online shopping, multi-channel shopping, challenges associated with online shopping and the use of social media in online shopping; and the research objectives developed for this study (see Chapter One for more information). The final questionnaire, detailed in Appendix G, consisted of ten components.

- **Section A:** Demographic Profile
- **Section B:** Artificial Intelligence in-store and online
- **Section C:** Shopper behaviour of high-involvement products
- **Section D:** Shopper behaviour of low-involvement products
- **Section E:** Social media.
- **Section F:** Risk.

III. Types of Questions

A research questionnaire can include various open-ended and closed-ended questions, including multiple-choice, Likert scale, nominal, ordinal, interval and ratio scale questions.

For this study, closed-ended questions were used. Multiple-choice, seven-point Likert scale, nominal, ordinal and interval scale-type questions were used.

- **Nominal scales**

Non-numeric variables are dealt with using a nominal scale called categorical variables. Different names are used to distinguish values from each other. It has two or more classes or categories. Therefore, it can be set up and placed in any order (Wiid and Diggines 2021: 177).

- **Ordinal scales**

The second form of a categorical variable is an ordinal scale. However, ordinal scales arrange the classes in sequence or order. The order of the values is crucial and significant on ordinal scales, although their differences are unknown. The ordinal scale includes numeric data (Babin and Zikmund 2016: 274).

- **Interval scales**

Order and precise number discrepancies are expressed in numeric interval scales. Interval scale data measure the difference in quantity and magnitude (D'Alessandro, Winzar, Lowe and Zikmund 2020: 254).

- **Ratio scales**

Researchers can use ratio scales to recognise, categorise and rank objects and compare time intervals or changes between them (Wiid and Diggins 2021: 177).

- **Likert scale**

The Likert scale ranges from three to seven points, allowing respondents to indicate how much they agree or disagree with a given statement (Brace 2018: 62). The following is how Azzarra (2010: 111) outlines the features of the Likert scale:

Likert scales are not predicated on a yes-or-no response from the responder; they are made to accommodate a range of opinions from the respondent, including the option for a neutral response. They are meant to collect quantitative data since they are simple to analyse.

A 7-point Likert scale was selected to enhance the sensitivity and precision of measurement compared to a 5-point scale. The broader range enables respondents to express more degrees of agreement or disagreement, which is particularly valuable when measuring constructs such as social media engagement, AI technologies, and perceived risk in the omnichannel retail context. Empirical evidence indicates that 7-point scales can improve reliability, provide a better approximation of interval-level data, and increase the instrument's ability to detect subtle yet meaningful differences in attitudes and perceptions (Finstad, 2010: 104; Taherdoost, 2019: 6; Preston and Colman, 2000: 12).

For this study, nominal scales, such as gender, were used. The researcher employed ordinal scales, such as the level of agreement and education. Interval scales were not used. The researcher had selected the seven-point Likert scale; hence, advanced statistical calculations could be performed.

5.3.11 Step Eleven: Collect data Administration of questionnaires

A marketing research firm was utilised to collect data.

- **Completion time of the questionnaire**

The questionnaire's estimated completion time was approximately 30 minutes. The questionnaire was open for two weeks.

For this study, questionnaires were used. A marketing research firm was utilised to collect data. Thirty-five online-accessed panels were used. Three thousand seven hundred and sixty invitations were sent to consumers from the thirty-five panels. The responses were completely anonymous. After data editing and cleaning, four hundred and twenty-eight completed responses were established.

5.3.12 Step Twelve: Prepare and process primary data

Data preparation includes coding, cleaning, entering, checking for errors and storage. This process involves physically examining completed questionnaires for completeness, consistency and accuracy (Malhotra 2020: 35).

- **Coding**

According to Wetcher-Hendricks (2011: 15), each question and statement must be coded. Coding the information refers to transforming the data into numbers to allow for quantitative data analysis (Bell, Bryman and Harley 2018: 168). Hence, categorising occurs when combined variables help group numerous objects that measure the same idea.

For this study, all questions and statements were coded before the data were exported into the SPSS software package version 28.0 and AMOS (IBM Version 28) to perform the necessary statistical calculations and tests.

- **Data cleaning and missing data**

Data cleaning is a crucial step in the research process, undertaken when errors or omissions, such as missing or incorrectly entered data, are identified. Prior to converting raw data into usable information, it must be thoroughly cleaned to ensure accuracy. Accurate data is essential for valid statistical analysis and the formulation of sound conclusions. This process may be conducted manually or with the assistance of computer-based statistical software (Struwig and Stead 2007: 158). It is not uncommon for respondents to leave certain sections of a questionnaire incomplete, resulting in missing values, referred to as variable missingness. Several factors may contribute to this, such as a respondent feeling uncomfortable or unwilling to disclose sensitive information (Crano et al. 2015: 244). According to Biggam (2011: 171), one approach to managing missing

responses is to assign the scale's midpoint and disregard the absence of data. However, this method reduces the effective sample size, imputes the average response for missing items and substitutes the mean of respondents' answers to other related variables, potentially affecting the validity of the dataset.

The questions and statements were numbered for this study. The researcher removed incomplete responses before performing statistical analysis.

- **Data entry**

Furthermore, Singh (2007: 83) describes data entry as the process that follows the coding and categorisation of data. The researcher must select the data entry format and the data entry programme used. Once the data has been captured, the data is ready for preliminary data analysis (Struwig and Stead 2013: 158).

For this study, the data was collected electronically, cleaned by removing incomplete responses and exported to SPSS version 28.0 and AMOS (IBM Version 28) to complete the necessary statistical computations and tests.

- **Checking for errors**

Researchers should use the following guide to ensure the data is error-free before analysis:

1) Check for codes that are not valid. Hence, only a few integers are assigned to the coding system. As a result, other numbers are mistakes. Common mistakes include the letters O and o in place of zero, letters l or I in place of one (1) and the number 7 in place of one.

2) Check for irrational connections. For example, if a person is placed in the 'higher management jobs' socio-economic categorisation group yet identifies their employment as 'self-employed,' a mistake has most certainly happened.

3) Check that the rules in the filter questions are followed for questionnaire data. Other variables should be recorded as missing values based on specific replies to filter questions. There would have been a mistake if this had not occurred (Saunders, Lewis and Thornhill 2019: 580).

For this study, the researcher checked for errors before data analysis and followed the abovementioned guidelines.

- **Data storage**

Storing data onto a computer or another electronic device allows the researcher to retrieve and sort the information easily using several methods. A password should be used to protect the data from criminals. The information should be backed up on external storage drives and internet-based storage to ensure the data is secure from natural weather disasters. It is vital to keep at least two types of data copies, 1) electronic and 2) physical, in various locations (Leedy and Ormrod 2021: 391).

For this study, raw data was captured and password protected. Only the marketing research firm and the researcher had access to the data. The information was deleted from the email, stored on a USB and kept in a lockup cupboard on campus and a second copy was kept at the researcher's premises. According to the Durban University of Technology's institutional policy, the researcher should keep the data on a USB for five years. After five years, the data on the USB should be deleted. Hard copies of data will be shredded. The section that follows describes the data analysis techniques used in this study.

5.3.13 Step Thirteen: Analyse the primary data

Primary data needs to be analysed to draw conclusions based on its findings.

This study calculated and computed the relevant statistical tests using the statistical computer software package (SPSS version 28.0) and AMOS (IBM Version 28). The preceding paragraphs discuss the type of statistics used to analyse the data.

1. Descriptive statistics

Descriptive statistics, as the term suggests, are employed to summarise and illustrate the characteristics of observed data. In this study, several statistical techniques were utilised, including frequency distributions, measures of central tendency, measures of dispersion, analyses of relationships and other basic descriptive methods (Vogt, Vogt, Gardner and Haeffele 2014: 206).

According to Anderson, Sweeney and Williams (2012: 33), a frequency distribution involves organising data into non-overlapping categories, thereby providing a clear tabulation of how often each value or range of values occurs. Gravetter and Forzano (2016: 419) further explain that this

technique aids in simplifying complex datasets by arranging scores into a structured format, where frequencies are recorded for each category within the measurement scale.

Measures of central tendency provide insight into the data's typical values. The mode refers to the most frequently occurring value within a dataset. The median identifies the central value once the data is ordered from lowest to highest. The mean is computed by summing all values and dividing by the number of observations, yielding the arithmetic average (Black 2012: 53).

Variability within the dataset is assessed through several measures. The variance, grounded in the mean as a reference point, is determined by calculating the average of the squared deviations from the mean. The standard deviation, representing the square root of the variance, offers a more interpretable measure of dispersion in the same units as the data. Additionally, the range indicates the spread by measuring the difference between the largest and smallest values (Dietz and Kalof 2009: 126).

To examine relationships between variables, methods such as correlation coefficients, scatter plots and contingency tables were employed. Correlation coefficients quantify the strength and direction of relationships between two variables. Scatter plots visually depict these relationships, revealing patterns in form, direction and magnitude. Contingency tables (or cross-tabulations) are commonly used to explore associations between categorical (nominal) variables (Jogulu and Pansiri 2011: 695).

In addition, basic descriptive statistics such as ratios, proportions and percentages were calculated. Ratios compare the relative frequencies between two groups, while proportions express a part-to-whole relationship by dividing a group's frequency by the total sample or population. Percentages are derived by multiplying these proportions by 100, offering a more interpretable representation of distribution (Healey 2012: 23).

Within the context of this study, descriptive statistical analyses were conducted to provide a comprehensive overview of the dataset. The mean was computed to determine the central value of the data, while the standard deviation was used to assess the extent of variation around the mean. The median served as a robust measure of central tendency, particularly in mitigating the effects of outliers. The interquartile range (IQR), capturing the spread of the middle 50% of the data, offered additional insight into variability with reduced sensitivity to extreme values.

A correlation matrix was generated to display the pairwise correlation coefficients between variables, aiding in the identification of significant relationships. For the purposes of factor analysis, a component matrix was employed to present the factor loadings, illustrating the strength of association between variables and latent factors. Furthermore, the explained variance was examined to determine the proportion of total variance accounted for by the extracted components, which informed decisions regarding factor retention.

Overall, these descriptive statistical procedures provided a foundational understanding of the dataset's structure and patterns, serving as a critical precursor to more advanced inferential analyses.

ii Inferential statistics

Inferential statistics is making inferences or concluding quantitative data on population characteristics using data from a sample from the same population. Parametric and non-parametric statistics are the two main subcategories of inferential statistics (Mendenhall, Beaver and Beaver 2012: 4).

- **Parametric statistics**

This is the most common type of inferential statistics. Parametric tests require more specific and rigorous assumptions compared to non-parametric tests. Because parametric tests are more robust, they are better at rejecting the null hypothesis when false (Kraska-Miller 2014: 34). The t-test, also known as the student t-test, is the most commonly used parametric test. It checks for differences between sample means for two independent groups to determine whether these differences are significant or due to chance (Salkind 2022: 1462). Analysis of variance (ANOVA) determines whether the means of multiple groups are the same or their differences are significant (Feinberg *et al.* 2013: 520).

- **Non-parametric statistics**

In events where the population distribution is either unknown or has little distribution other than normal, a non-parametric statistical hypothesis test may be the most appropriate (Byrnes 2008: 75). On the other hand, Chi-square, also known as the "goodness-of-fit test", is commonly used in non-parametric statistical tests. Chi-square tests are conducted when measurements link only to assigning observations to categories (Krishnaswamy, Sivakumar and Mathirajan 2009: 358).

- **Multivariate data analysis**

In addition, multivariate data analysis, also known as MANOVA, is considered an extension of ANOVA (Denis 2019: 141).

- **Chi-Square**

The chi-square test is a statistical method for assessing the difference between observed and expected data. It can also be performed to see if the data's categorical variables are related. This test helps determine whether a difference between two categorical variables results from coincidence or an association between them (Biswal 2022: 1).

- **Analysis of Variance (ANOVA)**

Analysis of variance, also called ANOVA, is utilised when more than two independent groups need to be compared on a single quantitative measure or score. Researchers report two critical values, the p-value and f-value, from the ANOVA when discussing its outcomes. The F-test detects significant differences (Creswell *et al.* 2020: 277).

- **Correlation Analysis**

Correlation analysis is a statistical technique used in research to determine the association between two variables and evaluate the strength of their linear relationship. The level of change in one variable as a result of the change in the other is determined using correlation analysis. A high correlation indicates a strong association between the two variables, whilst a low correlation indicates a poor correlation between the two variables. Correlation analysis examines quantitative data gathered through live polling and survey research methodologies. They look for trends, patterns, critical linkages and relationships between two variables or datasets (Questionpro 2022: 1).

- **Factor analysis**

According to Feinberg *et al.* (2013: 480), factor analysis is a technique for data reduction. It involves creating many inter-correlated variables and eliminating fewer uncorrelated factors from the group. When a researcher wants to represent numerous questions with a few fictitious elements, factor analysis is frequently used in survey research. The factor analysis matrix tables reflect the findings of the Kaiser-Meyer-Olkin (KMO) and Bartlett tests. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy must be more than 0.500 and Bartlett's test of Sphericity must be less than 0.05 to meet the criteria. All requirements must be met for the factor analysis

approach to be used. Only the Likert scale is used for factor analysis and specific components are divided into finer fragments.

For this study, several inferential parametric and non-parametric statistical tests were conducted to make predictions and generalisations about the population based on the sample data. The **Z value** was calculated to determine how many standard deviations a data point is from the mean, aiding in hypothesis testing to assess the significance of the results. The **P value** was used to evaluate the probability that the observed results occurred by random chance, guiding decisions on whether to reject the null hypothesis.

KMO (Kaiser-Meyer-Olkin) and Bartlett's Test of Sphericity were performed to assess the suitability of data for factor analysis. The KMO test measured the adequacy of the sample size for factor analysis. At the same time, Bartlett's test checked if the correlation matrix significantly differed from an identity matrix, indicating that variables were sufficiently related for factor analysis. Initial eigenvalues were examined in the context of factor analysis and principal component analysis to determine the amount of variance explained by each factor or component, which is crucial for deciding the number of factors to retain.

The fitness model was used to measure how well the statistical model fits the data and it is often employed in regression analysis and SEM. The **SEM** technique was applied to simultaneously assess the relationships among multiple variables, involving hypothesis testing and model fit assessment, making it a powerful inferential tool. SEM is a statistical method for examining relationships between observed (measured) and unobserved (latent) variables (Leedy and Ormrod 2021: 259). According to Hair *et al.* (2019: 614), all scales in SEM should include at least three measurement items. Therefore, the researcher utilised a seven-point scale. The SEM analysis was conducted using AMOS software (IBM version 28). The overall fit of both the measurement and structural models was evaluated using goodness-of-fit indices, such as the **Chi-square ratio** (which accounts for model complexity), **Comparative Fit Index (CFI)**, **Normed Fit Index (NFI)**, **Tucker Lewis Index (TLI)**, **Incremental Fit Index (IFI)** and **Root Mean Square Error of Approximation (RMSEA)**.

Model fitting involves assessing how well the data aligns with the conceptualised model (Khine, Ping and Cunningham 2013: 29). Hair *et al.* (2007: 121) consider these fit indices critical for evaluating the measurement model's validity. Model fit also requires comparing the hypothesised covariance model with the sample covariance matrix (Khine *et al.* 2013: 30). Thus, the overall

model assessment ensures that the model adequately represents the set of causal interactions and the collected data. For an acceptable normed chi-square, the value should be greater than one but less than 5 (Hair, Page and Brunsveld 2019: 600). Another commonly used fit index is the Goodness of Fit Index (GFI). According to Hu and Bentler (1999), a GFI value of 0.9 or higher is recommended. The third fit index considered is the Comparative Fit Index (CFI). According to Hooper, Coughlan and Mullen (2008: 55), a CFI value of 0.9 or higher is deemed acceptable. The Tucker–Lewis Index (TLI) was utilised to evaluate the model's fit. Hair et al. (2019: 600) recommend a TLI value of 0.9 or higher. The last fit index is the Root Mean Square Error of Approximation (RMSEA). It is suggested that the RMSEA value should fall between 0.05 and 0.08 (Mimouni-Chaabane and Volle 2010: 34).

Additionally, **Cronbach's Alpha** was calculated to measure the internal consistency (reliability) of a set of items in surveys or tests, indicating the quality of the measurements used in the study. These inferential statistical analyses enabled rigorous testing of hypotheses and contributed to the robustness of the study's conclusions.

iii Reliability

Reliability pertains to the consistency and replicability of research findings under stable conditions across multiple instances. In instances where outcomes within a specific domain demonstrate variability upon repeated assessments, researchers deem such measures unreliable (Bryman, 2012: 46). Wilson (2019: 35) advocates for a comprehensive evaluation of potential sources of unreliability, encompassing temporal discrepancies, participant-related inconsistencies and observer-induced biases to ascertain the reliability of research endeavours.

The researcher used the following techniques for this investigation to guarantee its reliability, together with the Cronbach Alpha:

- The questionnaire underwent pilot analysis to ensure that all questions and statements were pertinent and precise.
- The questionnaires guaranteed respondents' privacy.
- A reliability value of 0.70 or above is regarded as satisfactory. Cronbach's Alpha was derived to quantify measurement reliability. Cronbach's Alpha score determined overall reliability.

Table 5.3 Cronbach Alpha

Construct	Label	Items included	Cronbach's Alpha
1	Social media (S.O.C.)	6.1.2,6.1.3,6.1.4,6.1.5	.868
2	Artificial intelligence (TEC.)	3.1.1,3.1.2, 3.1.3, 3.1.4,3.2.4	.778
High-involvement product			
1	Pre-purchase (PRE.)	4.3.5,4.3.9,4.3.10,4.3.11	.749
2	Pre-purchase evaluation (PR)	4.3.1,4.3.2,4.3.3,4.3.4,4.3.7	.763
3	Post-purchase Satisfaction (POST)	4.6.1-4.6.4	.786
4	Pre-purchase awareness) PRE-AWARE	4.1.2,4.1.3	.679
5	Post-purchase Dissatisfaction (DSAT.)	4.7.1-4.7.2	.640
Low-involvement product			
	Pre-purchase	.3.1-5.3.9 and 5.3.11	.862
	Purchase	5.4.1, 5.4.4,5.4.5,5.5.2,5.5.4	.779
	Satisfaction	5.6.2,5.6.3,5.6.5	.738
	Dissatisfaction	5.7.1,5.7.2	.803
1	Logistics Risk (R_LOG)	8.4.1 – 8.4.5	.893
2	Transaction Risk (R_TRANS)	8.3.1 – 8.3.4	.884
3	Time loss risk (R_TIME)	8.2.1 – 8.2.3	.701
4	Financial risk (R_FIN)	8.1.1 – 8.1.5; 8.2.4	.834

In this research study, the reliability of the questionnaire was tested by evaluating the inter-item consistency using Cronbach's Alpha. As indicated in Table 5.3, the reliability score for each questionnaire section exceeded the reliability coefficient of 0.70. This high-reliability level suggests that the study's results are reliable.

Co-coefficient alphas were computed to evaluate the reliability of the measurement scales and their internal consistency. According to Nunnally (1978: 191), an instrument's reliability is reflected in its ability to yield consistent results despite potential variations. A quality study should produce reliable outcomes. Cronbach's alpha, a measure of reliability, is commonly used to assess the internal consistency of constructs or measurement tools (Tavakol and Dennick 2011: 54). The reliability coefficient depends on both the number of items and their average inter-correlation (Nunnally 1978: 237). Cronbach's alpha ranges from 0 to 1, with values closer to 1 indicating greater internal consistency. According to (Hair, Black, Babin, Anderson and Tatham 2007: 120), a Cronbach's alpha of 0.7 is considered acceptable. Each scale underwent item analysis to identify and remove items that did not significantly contribute to internal consistency. Nunnally (1978: 182) suggested that an item-to-total correlation of 0.20 is satisfactory, so items below this

threshold were considered for removal. The guidelines provided by Hinton, McMurray and Brownlow (2014: 364) were used to interpret reliability coefficients, whereby 0.50 to 0.70 indicates moderate reliability and 0.70 to 0.90 indicates higher reliability.

iv Validity

Hutcheson and Moutinho (2011: 327) noted that a research study is only valid if it measures what the researcher initially intended to measure. There are five classifications of validity, namely, content validity, predictive validity, convergent validity, discriminant validity and nomological validity, which are briefly discussed in the following paragraph:

- I. **Content validity:** Also known as face validity, this type of validity rates the questionnaire questions and statements to determine whether the items appropriately represent the underlying construct of interest. Content or face validity is judged by allowing an expert to analyse whether the questions and statements are applicable.
- II. **Predictive validity:** Criterion validity indicates whether a measure predicts something else the researcher wants to predict.
- III. **Convergent validity:** If the researcher has a firm sense that they are measuring the correct concept, the researcher should be able to develop alternative measures and the results of those measures should be homogenous.
- IV. **Discriminant validity:** The researcher requires that the various scales measure different concepts. Hence, the researcher does not confuse measuring one concept with measuring another concept and
- V. **Nomological validity:** Researchers prefer each measure to be related in an appropriate theoretical manner to other marketing constructs (Hyman and Sierra 2010: 245).

A measurement can be reliable without being valid, but a valid measurement is also reliable (Tavakol and Dennick, 2011). Therefore, this study tested validity separately from reliability. Reliability pertains to the consistency of a measure, whereas validity concerns its accuracy. Validity is crucial as it defines how well an instrument measures what it is intended to measure (Bordens and Abbott 2017: 109). This study focused specifically on evaluating discriminant and convergent validity.

The researcher established content validity by choosing the study's objectives. Moreover, the researcher created a questionnaire that asked questions and stated the study's goals. Hence, before administering the questionnaire to the sample, face validity was established by choosing scale items that had already demonstrated their ability to measure the intended construct effectively. Furthermore, the statistician, academics and a professional (supervisor) in the marketing field evaluated the questionnaire for face and content validity. The questionnaire was first administered to a pilot group with traits in common with the target demographic to gather insights into the target demographic's opinions. Face validity was established since the pilot respondents understood what was being asked of them. In addition, exploratory factor analysis was conducted to assess whether each question effectively contributed to the primary constructs in the questionnaire, ensuring its construct validity and reliability. In this study, the researcher conducted Exploratory Factor Analysis (EFA) to uncover the underlying factor structure of the questionnaire items and to confirm whether the observed variables (items) grouped together as theoretically intended. Although the constructs in the instrument were derived from existing literature, the questionnaire was adapted for the South African omni-channel retail context within the emerging Fourth Industrial Revolution (4IR). Given that this context has not been extensively validated in prior research, it was necessary to first explore the factor structure empirically before proceeding to confirmatory analyses. By conducting EFA first, the researcher could confirm the suitability of the adapted scale in the unique research context, thereby strengthening the validity of the measurement model.

After minor changes were made, the final administration of the questionnaire was completed, and exploratory factor analysis was performed again to assess whether each question effectively contributed to the primary constructs in the questionnaire.

Furthermore, construct validity is divided into convergent and discriminant validity. Concurrent validity is assessed by comparing it to measures of the same concept developed through different methods to determine how well the items correlate (convergent validity) or differentiate between individuals on specific behaviours (discriminant validity) (Singh 2007: 79). Convergent validity was assessed by examining the inter-correlations between measurement items and the research construct. Discriminant validity was evaluated by analysing the construct correlation matrix (Singh 2007: 79). In this study, the researcher used standardised regression weights generated by the AMOS statistical software to assess convergent and discriminant validity.

5.3.14 Step Fourteen: Interpret the results and develop a conceptual model.

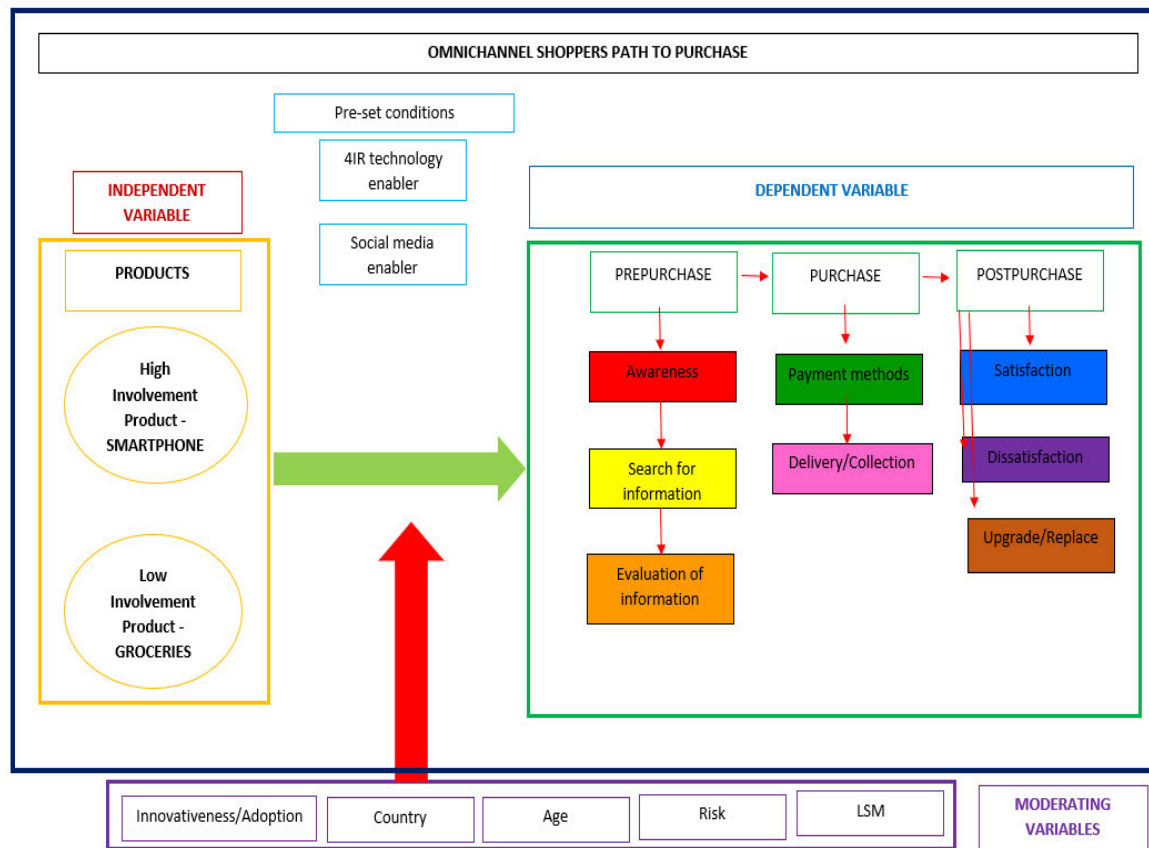


Figure 5. 5 Conceptual Framework

Please refer to Chapter One for a detailed explanation.

5.3.15 Step Fifteen: Prepare and present the final research report

This step involves designing a report that can be presented to organisations for managerial decision-making (D'Alessandro, Winzar, Lowe and Zikmund 2020: 27). **For this study**, a report on the findings can be presented to South African retailers. A thesis was compiled for examination.

5.3.16 Step Sixteen: Communicate the insights—output

For this study, the potential outputs include journal articles, conference papers and presentations. The survey yielded a list of potential areas to focus on:

- Geographical locations influence omnichannel shopping.
- Gender as a determinant of omnichannel shopping in South Africa

- The role of mobile in omnichannel retailing
- The role of the store in omnichannel retailing
- Omnichannel shopping: a comparative study of South Africa and Germany
- Risk factors and their impact on omnichannel shopping.
- Generation Z's attitude toward omnichannel shopping
- The adoption of digital technologies for omnichannel shopping in South Africa
- 4IR as an enabler of omnichannel shopping

5.4 ELIMINATIONS OF BIAS

A propensity towards or against one person or group, especially when perceived as unfair, is known as bias (Dictionary.com 2022: 1). Bias exists across research designs, claim Smith and Noble (2014: 100). Bias can arise at every level of the research process, influencing the validity and reliability of the study findings, making it difficult to eliminate. Measurement bias is the most generic form of bias in research, as measurement bias is derived from measurement errors related to the flaws or faults in the researchers' utilisation of the measuring instruments (questionnaires). There are two types of measurement errors: random measurement error (noise) and systematic measurement error. Bias can occur from various sources, such as the wording of the questions on the questionnaire or the sequence of the questions in it (Remler and Van Ryzin 2014: 83).

In this study, respondents remained anonymous by not providing their names, surnames, email addresses, mobile numbers, or other identifiable information. This approach was designed to prevent bias in analysing the research findings. Although the questionnaires were distributed through a marketing research firm, no identifying information was associated with any questionnaire, ensuring no identities were linked to the responses. As a result, the researcher aimed to maintain objectivity throughout the study.

5.5 ETHICAL CONSIDERATIONS

Ethics is a collection of principles and standards used in making decisions (Silver, Stevens, Wrenn and Loudon 2013: 24). Ethics refers to a person's fundamental principles and beliefs when making social and commercial decisions. Research ethics aims to protect research participants from harm, get informed permission from all participants and respect the right to privacy of everyone

participating in the research process (Gray 2020: 85). According to Baines and Fill (2014: 102), research should be performed objectively, subtly and honestly.

5.5.1 Ensuring that permission is obtained

Malhotra (2020: 467) emphasises obtaining formal authorisation through the proper channels to commence a study. Hence, when declaring the study ethically acceptable, the researcher must consider informed consent, written consent from selected individuals, voluntary involvement, confidentiality and anonymity (Adams and Lawrence 2014: 5). Considering the research involved online shoppers (omni-shoppers), securing approval became imperative for conducting the study. **For this study**, the researcher followed and adhered to all the ethical standards set by the academic institution. The Durban University of Technology, Management Sciences, Institutional Research Ethics Committee (IREC) provided the researcher with ethical clearance for this research study.

5.5.2 Ensuring participants have given informed consent

According to Allen (2017: 706), obtaining informed consent from respondents involves providing adequate information and assurance about their participation. This process allows individuals to understand the implications of their involvement and make an informed decision freely, without coercion from the researcher. In this study, respondents received an introductory letter detailing the nature of the study before participating (see Appendix B). They were then asked to indicate their consent to participate. Additionally, respondents were informed that their participation was entirely voluntary and that they had the right to withdraw from the research at any point.

5.5.3 Ensuring no harm comes to participants

According to Bos (2020: 130), adherence to ethical standards in research requires safeguarding respondents from harm. In this study, the researcher prioritised maintaining confidentiality and protecting the privacy of respondents' information. This precautionary measure aims to prevent any potential harm resulting from privacy breaches. Furthermore, no physical or chemical interventions existed since this study revolved around survey-based enquiries.

5.5.4 Ensuring confidentiality and anonymity

Malhotra (2020: 467) emphasised the importance of safeguarding participants' identities in research. Consequently, no direct link was established between respondents and the collected

data to comply with this principle. Moreover, any reported findings were presented in a manner that preserved the anonymity of the respondents, ensuring their identities remained undisclosed.

5.6 SUMMARY

This study's research methodology included a complete overview of each stage of the research process. The study's research problem and objectives were clarified. This study's research design, method, sample and sample size were described in detail. Information about the questionnaire was provided in detail. Validity and reliability of the questionnaire were stated. The chapter ended with a review of the data-collection techniques, data preparation and data analysis, as well as a discussion of how to present and report on the research findings and provide a research output structure.

CHAPTER SIX: FINDINGS, ANALYSIS AND INTERPRETATION

DEMOGRAPHIC PROFILE AND ARTIFICIAL INTELLIGENCE

6.1 INTRODUCTION

Chapter Five explained the research design, data collection methods and questionnaire design. The primary aim of chapter six is to provide a detailed analysis and clarify the research outcomes. It begins with a thorough analysis of the data. Then, it examines insights derived from the results of the demographic profile, with a section focusing on artificial intelligence in-store and online. The collected responses were analysed using the Statistical Package for the Social Sciences (SPSS) version 28.0. The research instrument included 128 items that were categorised at both the nominal and ordinal dimension levels. The survey had five parts, namely, demographic information, artificial intelligence in-store and online, shopper behaviour for high-Involvement products (pre-purchase, purchase and post-purchase), shopper behaviour for low-involvement products (pre-purchase, purchase and post-purchase), social media (usage and engagement) and risk (logistics, time loss, financial and transaction).

6.2 RESPONSE RATE AND REPRESENTATIVENESS

This study's data collection involved an electronic questionnaire administered among thirty-five consumer panels. 3 760 invitations were sent out, yielding a purposive sample of 488 respondents who returned the questionnaire. After data cleaning, 428 completed responses were retained.

6.3 DESCRIPTIVE AND INFERENTIAL STATISTICS

This section presents descriptive statistics derived from the demographics of the respondents. Following Dhanapala, Vashub and Subramaniam (2015: 117), descriptive statistics entail the organisation, summarisation and elucidation of quantitative data. The demographic details encompass characteristics of age, gender, qualification, occupation and household income, which are visually represented through tables and graphs. On the other hand, inferential statistics involve generalising the results of a study to the broader population and assessing whether the differences in means, proportions, or percentages are genuine or merely by chance (Gilbert, Juraska and DeCamp 2017: 16).

6.3.1 Section A: Demographic Data

The study questionnaire necessitated demographic details from respondents. As elucidated by Forthun, Strandberg-Larsen and Wilcox (2018: 1298), demographic information encapsulates individual characteristics from a particular viewpoint. Table 6.1 represents the respondents' demographic variables.

Table 6. 1 Socio-demographic variables

Variables	Frequency (n=428)	Percentage
Generation		
Before 1958	8	1.9
1958-1976	35	8.2
1977-1994	239	55.8
1995-2000	118	27.6
After 2000	28	6.5
Gender		
Male	165	38.6
Female	261	61.0
I prefer not to say	2	0.5
Highest educational qualification		
Primary	3	0.7
Secondary	91	21.3
Tertiary	334	78.0
Occupation		
Professional	134	31.3
Technical	39	9.1
Administrative	84	19.6
Managerial	77	18.0
Self-employed	75	17.5
Retired	1	0.2
Unemployed	18	4.2
Household Gross income per month		
<R6600	44	10.3
R12801–R16300	57	13.3
R16301–R25300	139	32.5
>R25300	188	43.9
Geographical residential region		
Eastern Cape	32	7.5
Free State	15	3.5
Gauteng	206	48.1
KwaZulu-Natal	65	15.2
Limpopo	13	3.0

Mpumalanga	17	4.0
Northern Cape	2	0.5
Northwest	13	3.0
Western Cape	65	15.2

Table 6.1 presents the demographic characteristics of the respondents. The majority of respondents fall into the "1977-1994" generational cohort (55.8%). 27.6% of the respondents were in the 1995-2000 generational cohort. A sizeable portion of respondents were female (61%). A significant portion of respondents have a tertiary level of education (78.0%). The majority of respondents have professional occupations (31.3%). Meanwhile, 19.6% of respondents were employed in the administrative sector. Regarding household gross monthly income, the largest group earns income exceeding R25300 (43.9%). At the same time, 32.5% were in the R16301-R25300 income cohort. The majority of respondents were from the Gauteng province (48.1%).

6.3.2 Devices used

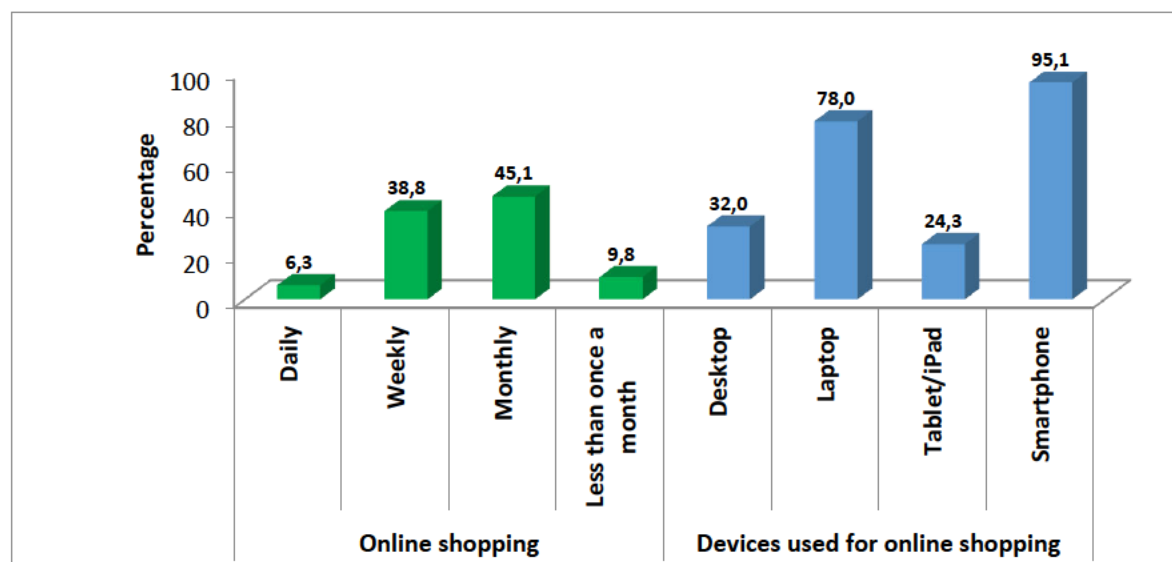


Figure 6. 1 Online shopping and devices used.

Figure 6.1 depicts the frequency of online shopping and the devices used by most online respondents. The question for online shopping devices was a multiple-option question. The majority of the respondents (78% and 95.1%) respectively used laptops and smartphones. Interestingly, online shopping ranged from weekly (38.8%) of respondents to monthly (45.1%).

6.4 Descriptive and Inferential statistics

6.4.1 Artificial Intelligence In-store

Table 6.2 Artificial Intelligence in-store

Questionnaire Items	N	Percentage							Mean	Std Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
3.1.1 self-service checkouts in-store.	428	4.0	5.1	5.8	18.7	15.2	27.6	23.6	5.13	1.652	6	4;6	-11.232	<.001*
3.1.2 smart shelf tags provide in-store assistance.	428	2.6	0.9	3.0	11.7	18.7	35.0	28.0	5.60	1.359	6	5;7	-14.852	<.001*
3.1.3 Intelligent display advertisements influence purchase in-store.	428	3.0	4.0	4.9	13.1	17.5	32.2	25.2	5.36	1.543	6	4.25;7	-13.047	<.001*
3.1.4 Targeted deals sent smartphone encourages purchases shopping in-store.	428	2.8	5.4	4.4	13.8	18.7	27.6	27.3	5.32	1.587	6	4;7	-12.679	<.001*

Table 6.2 depicts the in-store artificial intelligence used by respondents. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Respondents strongly believed that smart shelf tags would provide in-store assistance. The significant Z value of -14.852 and a P value <.001* emphasise the consensus among respondents favouring this technology—smart shelf tags (Mean 5.6) (Std. 1.359).
- Respondents have a strong preference for intelligent advertisement displays. The Z value of -13.047 and a P value of <.001* reinforce the statistical significance of this preference. Intelligent advertisement displays (Mean 5.30) (Std. 1.543)
- Respondents agreed that targeted deals sent to smartphones encouraged purchase decisions. The Z value of -12.679 and a P value <.001* underscore the statistical significance of this inclination—targeted deals (Mean 5.32) (Std. 1.587).
- Respondents prefer self-service checkout. The Z value of -11.232 and a P value of <.001* reinforce the statistical significance of this preference. Self-service checkout (Mean 5.13) (Std. 1.652)

Table 6.3 Correlation Matrix – in-store Artificial Intelligence

Correlation Matrix				
	3.1.1 I prefer self-service checkouts in-store	3.1.2 I believe smart shelf tags would provide me with in-store assistance	3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store	3.1.4 Targeted deals sent to my smartphone while shopping encourage me to make purchases while shopping in-store
3.1.1 I prefer self-service checkouts in-store	1.000	0.457	0.266	0.311
3.1.2 I believe smart shelf tags would provide me with in-store assistance	0.457	1.000	0.508	0.382
3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store	0.266	0.508	1.000	0.584
3.1.4 Targeted deals sent to my smartphone while shopping encourage me to make purchases while shopping in-store	0.311	0.382	0.584	1.000

The correlation measures the link between two variables, indicating the strength and direction of the relationship between the two variables. Correlation coefficients range from 0 to 1 (no relationship). At the same time, the latter entails a stronger relationship between the variables.

The relationship between variables is deemed reasonably stronger if the correlation coefficient is 0.5 or higher; otherwise, it is considered weak. A negative correlation coefficient suggests an inverse relationship between the variables. In contrast, a positive correlation indicates a positive relationship between the variables (Feng, Zhu, Zhuang and Yu 2018: 4). A Pearson correlation test was performed for the questions on artificial intelligence in-store, and the test results are presented in Table 6.3.

Table 6.3's correlation matrix depicts the correlations among different factors related to in-store shopping preferences and behaviours. The preference for self-service checkouts in-store shows a perfect correlation with itself (1.000), as expected. It correlates positively with believing smart shelf tags would provide in-store assistance (0.457), indicating a moderate positive relationship. The smart shelf tags (0.508) and intelligent display advertisements depict a strong correlation between the variables. The strongest relationship between the variables occurs with targeted deals sent to smartphones and intelligent displays (0.584).

These results indicate a moderate to strong positive correlation with these factors. Therefore, the following subsection discusses the results of the principal component analysis.

Table 6.4 Component Matrix – Artificial Intelligence In-store

Component Matrix ^a	
	Component
	1
3.1.1 I prefer self-service checkouts in-store	0.642
3.1.2 I believe smart shelf tags would provide me with in-store assistance	0.786
3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store	0.804
3.1.4 Targeted deals sent to my smartphone while shopping encourages me to make purchases while shopping in-store	0.767
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Principal component analysis (PCA) is a variable-reduction technique that accounts for most variances from the original variables (Labrín and Urdinez 2020: 358). PCA produces eigenvalues and the decision rule is to adopt the components whose eigenvalue is greater than 1. It also provides the proportion of variance from each component and the cumulative variance from successive components. Results from an unrotated principal component analysis performed for the data on artificial intelligence in-store are presented in Table 6.4.

To explore the data structure, when a construct is measured using several items and reduces them to a small number of latent variables, factor analysis with Promax rotation is applied to the set of items in the construct. Some items may be dropped during the process because they do not load strongly enough onto any factor or cross-load onto multiple factors. The reliability of combining the items into a single latent variable is tested using Cronbach's alpha. An alpha value of at least 0.7 is considered adequate. If items do not correlate strongly enough with the other items in the construct and negatively affect the reliability, they may be dropped. The factor extraction is deemed successful if the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) exceeds 0.6 and Bartlett's test of sphericity is significant.

Table 6.5 KMO and Bartlett's Test – Artificial Intelligence In-store

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.672
Bartlett's Test of Sphericity	Approx. Chi-Square	422.802
	Df	6
	Sig.	<.001

A Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) of .672 and a significant Bartlett's test indicate that the data were adequate for successful and reliable extraction (Table 6.4). Rotation converged in 7 iterations.

Table 6.6 Total Variance – Artificial Intelligence In-store

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2.265	56.628	56.628	2.265	56.628	56.628
2	0.823	20.585	77.213			
3	0.553	13.832	91.045			
4	0.358	8.955	100.000			
Extraction Method: Principal Component Analysis.						

Table 6.6 applied factor analysis with Promax rotation to these four items. One factor was extracted, accounting for 56.628% of the variance in the data.

Table 6.7 Item-Total Statistics – Artificial Intelligence In-store

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
3.1.1 I prefer self-service checkouts in-store	16.28	13.384	0.417	0.232	0.744
3.1.2 I believe smart shelf tags would provide me with in-store assistance	15.81	13.470	0.585	0.371	0.651
3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store	16.06	12.423	0.583	0.437	0.644
3.1.4 Targeted deals sent to my smartphone while shopping encourages me to make purchases while shopping in-store	16.09	12.491	0.547	0.369	0.665
Total					0.742

The scale exhibits an acceptable level of reliability, as evidenced by a Cronbach's Alpha of 0.742, which, while sufficient, suggests potential for improvement. Among the items, 3.1.2 and 3.1.3 make the strongest contributions to the scale's consistency, as indicated by their high Corrected Item-Total Correlations and Squared Multiple Correlations. In contrast, item 3.1.1 demonstrates the weakest alignment with the overall construct, with the lowest Corrected Item-Total Correlation (0.417) and Squared Multiple Correlation (0.232). While the removal of item 3.1.1 would result in

a slight increase in the overall reliability, it may compromise the comprehensiveness of the construct being measured. Therefore, despite its relatively weaker contribution, retaining item 3.1.1 ensures a holistic assessment of the underlying construct. Overall, the scale demonstrates acceptable reliability and the inclusion of all items is justified, as their removal would only marginally enhance the scale's consistency.

6.4.2 Artificial Intelligence Online

Table 6.8 Artificial Intelligence Online

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
3.2.1 I prefer chatbots to provide me with online customer service.	428	11.4	14.0	10.3	17.5	15.4	16.4	15.0	4.20	1.953	4	2;6	-1.964	.049*
3.2.2 I shop for products by uploading images online.	428	9.3	16.4	11.2	16.6	15.9	18.5	12.1	4.17	1.891	4	2;6	-1.725	.085
3.2.3 I choose to search for products using voice search online.	428	13.3	18.2	9.8	16.8	15.0	16.6	10.3	3.93	1.941	4	2;6	-1.063	.288
3.2.4 Personalised product recommendations on websites influence my purchase decision.	428	2.6	5.4	4.4	14.3	18.9	30.1	24.3	5.29	1.552	6	4;6	-12.651	<.001*

Table 6.8 depicts the results of artificial intelligence online with frequency percentages and mean values ranging from a maximum of seven to a minimum of one. The mean values in descending order include:

- Personalised product recommendations on websites significantly impact purchase decisions, with the highest. The substantial negative Z value of -12.651 and a P value of $<.001^*$ emphasise the strong influence of this AI-driven feature. (Mean 5.29) (Std. 1.552).
- Respondents show a moderate preference for chatbots to provide online customer service. The statistically significant Z value of -1.964 and a P value of $.049^*$ suggest this preference is not random. (Mean 4.20) (Std. 1.953).
- Uploading images online for product search was moderately favourable among the respondents. The Z value of -1.725 and a P value of $.085$ indicate borderline significance. Further exploration may be warranted to understand the dynamics of this choice. (Mean 4.17) (Std. 1.891).
- The respondents are neutral towards using voice search for online product search. The non-significant Z value of -1.063 and a P value of $.288$ suggest that the attitude towards this AI feature is not significantly different from neutrality. (Mean 3.93) (Std. 1.941).

The correlation matrix test for artificial intelligence online was conducted. The results are depicted in Table 6.9.

Table 6.9 Correlation Matrix – Artificial Intelligence Online

Correlation Matrix					
		3.2.1 I prefer chatbots to provide me with online customer service	3.2.2 I shop for products by uploading images online	3.2.3 I choose to search for products using voice search online	3.2.4 Personalised product recommendations on websites influence my purchase decision
Correlation	3.2.1 I prefer chatbots to provide me with online customer service	1.000	0.337	0.415	0.376
	3.2.2 I shop for products by uploading images online	0.337	1.000	0.426	0.322
	3.2.3 I choose to search for products using voice search online	0.415	0.426	1.000	0.355
	3.2.4 Personalised product recommendations on websites influence my purchase decision	0.376	0.322	0.355	1.000

- Table 6.9 shows a moderate positive correlation with shopping through image upload (0.337), searching products with voice (0.415) and being influenced by personalised product recommendations (0.376).
- Shopping through image upload exhibits a moderate positive correlation with searching products through voice (0.426) and being influenced by personalised recommendations (0.322).
- Searching products through voice positively correlates with personalised recommendations (0.355).
- The influence of personalised recommendations shows moderate positive correlations with all chatbots (0.376), shopping through image upload (0.322) and product search through voice (0.355).

These results indicate a moderate to strong positive correlation with these factors. Therefore, the following subsection discusses the results of the principal component analysis.

Table 6.10 Component Matrix – Artificial Intelligence Online

Component Matrix^a	
	Component 1
3.2.1 I prefer chatbots to provide me with online customer service	0.734
3.2.2 I shop for products by uploading images online	0.713
3.2.3 I choose to search for products using voice search online	0.766
3.2.4 Personalised product recommendations on websites influence my purchase decision	0.696
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Table 6.10 presents the component matrix resulting from PCA. Each row represents a variable and each column represents a principal component. PCA produces eigenvalues and the decision rule is to adopt the components whose eigenvalue is greater than 1. It also provides the proportion of variance from each component and the cumulative variance from successive components.

Table 6.11 KMO and Bartlett's Test – Artificial Intelligence Online

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.742
Bartlett's Test of Sphericity	Approx. Chi-Square	281.712
	Df	6
	Sig.	<.001

The KMO statistic measures the suitability of data for factor analysis. A value closer to 1 indicates that the variables are highly correlated and suitable for factor analysis. In this case, the KMO value is 0.742, suggesting that the dataset has moderate to high correlations among variables, making it adequate for factor analysis and successful and reliable extraction (Table 6.10). Rotation converged in 7 iterations.

Table 6.12 Total Variance – Artificial Intelligence Online

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	2.118	52.940	52.940	2.118	52.940	52.940
2	0.703	17.574	70.513			
3	0.630	15.758	86.272			
4	0.549	13.728	100.000			
Extraction Method: Principal Component Analysis.						

Table 6.12, factor analysis with Promax rotation was applied to these four items. One factor was extracted, accounting for 52.94% of the variance in the data.

Table 6.13 Item-Total Statistics – Artificial Intelligence Online

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
3.2.1 I prefer chatbots to provide me with online customer service	13.39	16.909	0.493	0.249	0.635
3.2.2 I shop for products by uploading images online	13.42	17.561	0.474	0.232	0.647
3.2.3 I choose to search for products using voice search online	13.67	16.461	0.534	0.287	0.607
3.2.4 Personalised product recommendations on websites influence my purchase decision	12.30	19.926	0.455	0.210	0.660
Total					0.703

Table 6. 14 Overall Scores for AI in-store and online

	N	Mean	Std. Deviation	Std. Error Mean	T	df	P
Instore	428	5.3534	1.14965	0.05557	96.335	427	<.001
Online	428	4.3989	1.33801	0.06468	68.016	427	<.001

Table 6.14 presents the overall mean, standard deviation, and standard error mean for artificial intelligence in-store with a mean value of 5.3534 and Std 1.4965, whilst online has a mean value of 4.3989, and Std.1.33801. It is important to note that the results of both AI in-store and AI online were significant ($P = <.001$).

CHAPTER SEVEN: FINDINGS, ANALYSIS AND INTERPRETATION

SOCIAL MEDIA AND RISK

7.1 INTRODUCTION

This chapter explores how consumers engage with social media in their shopping activities and how they perceive risks such as financial insecurity, time loss, transaction issues and logistical concerns. Building on the demographic and AI findings from Chapter 6, this chapter focuses on identifying behavioural patterns related to digital platforms and perceived risks in omnichannel retailing.

7.2 DESCRIPTIVE AND INFERENTIAL STATISTICS

This section presents descriptive and inferential statistics derived from the sections on social media usage, engagement and risks.

7.3 SHOPPING BEHAVIOUR - SOCIAL MEDIA

Table 7.1 Social media usage for purchases.

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
6.1.1 post shopping experiences on social media.	428	21.3	14.7	4.2	15.7	11.0	17.5	15.7	3.96	2.185	4	2;6	-1.080	.280
6.1.2 search for product vendors on social media	428	4.7	7.7	4.0	10.7	17.8	28.3	26.9	5.21	1.740	6	4;7	11.219	<.001*
6.1.3 read reviews on social media before purchases.	428	3.0	4.0	1.4	6.8	17.3	29.2	38.3	5.72	1.509	6	5;7	14.590	<.001*
6.1.4 I make price comparisons on social media	428	3.7	5.6	1.6	9.6	12.9	24.8	41.8	5.64	1.669	6	5;7	13745	<.001*
6.1.5 compare brands on social media before purchasing.	428	4.9	5.8	2.8	9.1	13.8	25.7	37.9	5.50	1.746	6	5;7	-12.755	<.001*

Table 7.1 depicts respondents' social media usage before the purchase stage. The mean values, in descending order, ranged from seven to one.

- Firstly, reading product reviews on social media platforms had the highest mean value of 5.72 and Std. 1.509. The high Z value of 14.590 and P value $<.001^*$ underscore the importance of social media reviews in decision-making.
- Secondly, price comparisons on social media scored a mean value of 5.64 and Std. 1.669. The highly negative Z value of -13.745 and P value $<.001^*$ might indicate a potential error in reporting or data collection for this item.
- Thirdly, respondents also compared brands on social media with a mean value of 5.50 and Std. 1.7646. The significant negative Z value of -12.755 and P value $<.001^*$ emphasise the influence of social media in brand comparison.
- Fourthly, the search for vendors scored a mean value of 5.21, and a Std. 1.740. The substantial Z value of 11.219 and P value $<.001^*$ indicate a prevalent use of social media for vendor exploration.

Respondents utilise social media for vendor exploration, reading reviews, price comparisons and brand comparisons, while posting shopping experiences is rare.

Table 7.2 Correlation Matrix – social media usage for pre-purchases

Correlation Matrix					
Correlation	6.1.1 I Post my shopping experiences on social media	6.1.2 I search for product vendors on social media before purchase	6.1.3 I read reviews on social media before purchase	6.1.4 I make price comparisons on social media before purchase	6.1.5 I compare brands on social media before purchasing
6.1.1 I post my shopping experiences on social media	1.000	0.478	0.439	0.440	0.441
6.1.2 I search for product vendors on social media before purchase	0.478	1.000	0.625	0.579	0.586
6.1.3 I read reviews on social media before purchase	0.439	0.625	1.000	0.553	0.561
6.1.4 I make price comparisons on social media before purchase	0.440	0.579	0.553	1.000	0.826
6.1.5 I compare brands on social media before purchasing	0.441	0.586	0.561	0.826	1.000

Table 7.2 depicts the strength of the relationship among the items analysed. The scores ranged from a maximum of one to a minimum of 0.439. The most substantial relationship is comparing brands advertised on social media with price comparisons, with a score of 0.826.

The second positive relationship depicted was between the reviews on social media and the search for product vendors, with a score of 0.625. In addition, it was also noted that the search for vendors and company brands on social media has a strong relationship score of 0.586. Interestingly, a moderate relationship was also observed between respondents who read product reviews and compared brands, with a score of 0.561.

Table 7.3 KMO and Bartlett's Test – social media usage

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.806
Bartlett's Test of Sphericity	Approx. Chi-Square	1087.035
	Df	10
	Sig.	<.001

The reliability of combining the items into a single latent variable was tested using Cronbach's alpha. An alpha value of at least 0.7 is considered adequate. If items do not correlate strongly enough with the other items in the construct and negatively affect the reliability, they may be dropped. The factor extraction is deemed successful if the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) exceeds 0.6 and Bartlett's test of sphericity is significant. A Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) of .806 and a significant Bartlett's test indicate that the data were adequate for successful and reliable extraction (Table 7.4). Rotation converged in 7 iterations.

Table 7.4 Component Matrix – Social Media Usage

Component Matrix ^a	
	Component 1
6.1.1 I post my shopping experiences on social media	0.671
6.1.2 I search for product vendors on social media before purchase	0.816
6.1.3 I read reviews on social media before purchase	0.791
6.1.4 I make price comparisons on social media before purchase	0.860
6.1.5 I compare brands on social media before purchasing	0.865
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Table 7.4 presents the data structure, showing factor loadings and the groupings that result from the analysis. Five factors were extracted from the data, all loaded perfectly under one component.

Table 7.5 Total Variance Explained – Social Media Usage

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.231	64.620	64.620	3.231	64.620	64.620
2	0.671	13.417	78.037			
3	0.554	11.072	89.109			
4	0.371	7.422	96.530			
5	0.173	3.470	100.000			
Extraction Method: Principal Component Analysis.						

Table 7.5, factor analysis with Promax rotation was applied to these five items. One factor that accounts for 64.620% of the variance in the data was extracted

Table 7.6 Item-Total Statistics – social media usage

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
6.1.1 I post my shopping experiences on social media	22.07	31.887	0.531	0.868
6.1.2 I search for product vendors on social media before purchase	20.81	32.899	0.693	0.811
6.1.3 I read reviews on social media before purchase	20.30	35.570	0.662	0.822
6.1.4 I make price comparisons on social media before purchase	20.39	32.809	0.741	0.800
6.1.5 I compare brands on social media before purchasing	20.53	32.015	0.744	0.798
Test scale				0.850

Table 7.6 shows that all items scored above 0.7, which is deemed acceptable. The test scale demonstrates a high level of reliability, as evidenced by an overall Cronbach's Alpha of 0.850, which exceeds the threshold of 0.8 commonly regarded as indicative of strong internal consistency. Notably, items such as 6.1.2, 6.1.4 and 6.1.5 exhibit the highest Corrected Item-Total Correlations, with values of 0.693, 0.741 and 0.744, respectively, underscoring their substantial contribution to the scale's coherence. An analysis of the reliability metrics reveals that the removal of any individual item results in only marginal changes to the overall reliability, indicating that each item is well-aligned with the construct being measured. Consequently, the scale is robust, with all items contributing meaningfully to its consistency and reliability. While certain items, such as 6.1.5, show slightly higher correlations, their removal would not significantly enhance the overall reliability, affirming the appropriateness of retaining all items.

7.4 SOCIAL MEDIA ENGAGEMENT

Table 7.7 Social Media Engagement

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	IQR	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
6.2.1 react to retailer's posts.	428	6.3	10.0	4.4	12.9	14.5	22.4	29.4	5.04	1.905	6	4;7	9.556	<.001*
6.2.2 comments on the retailer's social media	428	10.3	12.6	7.2	13.3	14.5	21.7	20.3	4.56	2.011	5	3;6	-5.190	<.001*
6.2.3 share retailer's posts.	428	11.0	15.9	5.6	15.9	12.6	19.6	19.4	4.40	2.047	5	2;6	3.679	<.001*
6.2.4 register on retailer's posts	428	6.3	8.4	3.3	14.7	15.0	25.0	27.3	5.08	1.841	6	4;7	-9.839	<.001*
6.2.5 follow retailers' social media.	428	5.6	8.2	4.0	7.0	16.1	30.4	28.7	5.26	1.804	6	5;7	11.179	<.001*
6.2.6 follow social media influencers.	428	11.4	9.6	4.2	13.3	14.7	21.0	25.7	4.76	2.046	5	3;7	-6.608	<.001*

Table 7.7 depicts the mean values, Z and P values. The mean value in descending order is as follows:

- Follow the retailer's social media – (Mean 5.26 and Std. 1.804).
- Register on retailer's posts for competitions – (Mean 5.08 and Std. 1.841).
- React to retailer's posts – (Mean 5.04 and Std. 1.905).
- Follow influencers – (Mean 4.76 and Std. 2.046).
- Comment on retailer's social media accounts – (Mean 4.56 and Std. 2.011)

Table 7.8 Correlation Matrix – Social Media Engagement

Correlation Matrix						
	6.2.1 I react to retailer's posts (like love, care, ha-ha, sad, angry)	6.2.2 I post comments on the retailer's social media account	6.2.3 I share retailer's posts	6.2.4 I enter or register on retailer's posts (for competitions)	6.2.5 I follow retailers on social media	6.2.6 I follow social media influencers that engage with brands/retailers
6.2.1 react to retailer's posts	1.000	0.703	0.606	0.474	0.600	0.511
6.2.2 post comments on the retailer's social media	0.703	1.000	0.711	0.550	0.638	0.548
6.2.3 share retailer's posts	0.606	0.711	1.000	0.574	0.612	0.539
6.2.4 register on retailer's posts	0.474	0.550	0.574	1.000	0.636	0.450
6.2.5 follow retailers on social media	0.600	0.638	0.612	0.636	1.000	0.630
6.2.6 follow social media influencers that engage with brands/retailers	0.511	0.548	0.539	0.450	0.630	1.000

Table 7.8 correlation matrix shows the relationships between various social media engagement behaviours related to retailers and brands in descending order, namely:

- Post comments on the retailers' social media accounts and share the retailers' posts (matrix score of 0.711).
- React to the retailers' posts and post comments on the retailers' social media accounts (matrix score of 0.703).
- Post comments on the retailers' social media accounts and follow the retailers on social media (matrix score of 0.638).
- Register on the retailers' posts and follow the retailers on social media (matrix score of 0.636).
- Follow the retailers on social media and follow social media influencers that engage with brands and retailers (matrix score of 0.630).

Table 7.9 KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.882
Bartlett's Test of Sphericity	Approx. Chi-Square	1407.602
	Df	15
	Sig.	<.001

To explore the data structure, when a construct is measured using several items and reduces them to a small number of latent variables, factor analysis with Promax rotation is applied to the set of items in the construct. Some items may be dropped during the process because they do not load strongly enough onto any factor or cross-load onto multiple factors. The reliability of combining the items into a single latent variable is tested using Cronbach's alpha. An alpha value of at least 0.7 is considered adequate. If items do not correlate strongly enough with the other items in the construct and negatively affect the reliability, they may be dropped. The factor extraction is deemed successful if the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) exceeds 0.6 and Bartlett's test of sphericity is significant. A Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) of .882 and a significant Bartlett's test indicate that the data was adequate for successful and reliable extraction (Table 7.10). Rotation converged in 7 iterations.

Table 7.10 Component Matrix

Component Matrix ^a	
	Component
	1
6.2.1 I react to retailer's posts (like love, care, ha-ha, sad, angry)	0.804
6.2.2 I post comments on the retailer's social media account	0.860
6.2.3 I share retailer's posts	0.836
6.2.4 I enter or register on retailer's posts (for competitions)	0.753
6.2.5 I follow retailers on social media	0.849
6.2.6 I follow social media influencers that engage with brands/retailers	0.751
Extraction Method: Principal Component Analysis.	
a. One component was extracted.	

Table 7.10 presents the data structure, showing factor loadings and the groupings that result from the analysis. Six factors were extracted from the data, all loaded perfectly under one component.

Table 7.11 Item-Total Statistics

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
6.2.1 I react to retailer's posts (like love, care, ha-ha, sad, angry)	24.05	63.761	0.708	0.876
6.2.2 I post comments on the retailer's social media account	24.54	60.427	0.782	0.864
6.2.3 I share retailer's posts	24.70	60.806	0.750	0.870
6.2.4 I enter or register on retailer's posts (for competitions)	24.02	66.199	0.646	0.885
6.2.5 I follow retailers on social media	23.84	63.528	0.770	0.868
6.2.6 I follow social media influencers that engage with brands/retailers	24.33	63.694	0.645	0.887
Test scale				0.894

Table 7.11 shows that all items scored above 0.7, which is deemed acceptable. The scale exhibits a high degree of reliability and consistency, as evidenced by a Cronbach's Alpha of 0.894, which is indicative of excellent internal consistency. Items such as 6.2.2 and 6.2.5, with Corrected Item-Total Correlations of 0.782 and 0.770, respectively, make substantial contributions to the scale's overall robustness. In contrast, items 6.2.4 and 6.2.6 display comparatively lower correlations, reflecting slightly weaker alignment with the overall construct; however, their inclusion remains warranted, as their removal does not significantly enhance the scale's reliability. Overall, the scale's strong reliability supports the retention of all items, as each contributes meaningfully to capturing the construct being measured and any modifications would result in only marginal changes to its consistency.

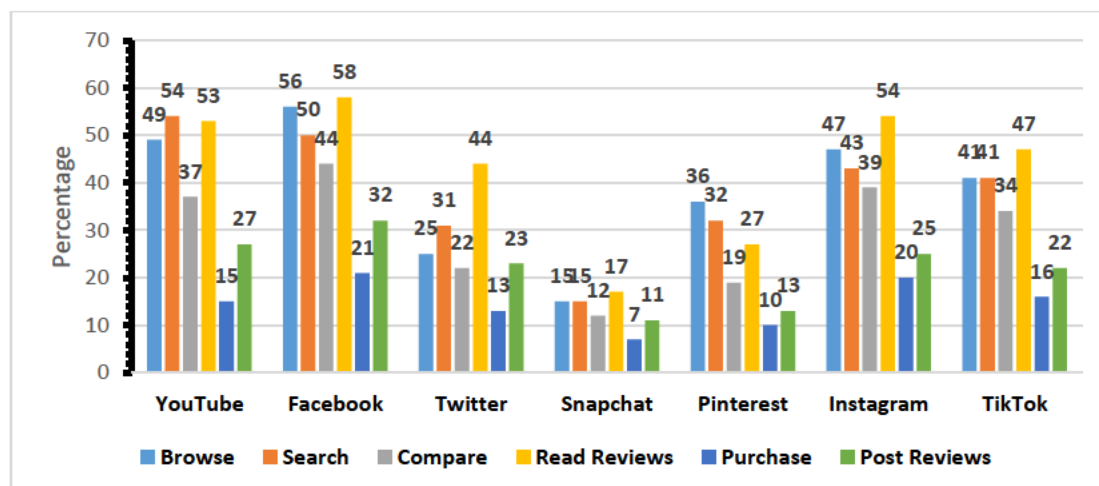


Figure 7. 1 Comparison between social media platforms

According to Figure 7.1, respondents utilise several social media platforms. The majority of respondents use the following platforms:

Respondents in the study actively engage with various social media platforms for different purposes in their consumer decision-making process. The majority of the respondents use the following platforms:

- **Read Reviews:** 58% of respondents rely on **Facebook** to read product reviews, reflecting its dominance as a trusted source for peer opinions. Facebook's extensive community and review features provide consumers with the necessary information to make informed decisions. While 21% of respondents make purchases on Facebook, this concurs with Gomez (2021), who stated that consumers are most likely to purchase on Facebook, Instagram and YouTube—all supporting media-rich listings.
- **Searching:** 54% of respondents prefer **YouTube** for product-related searches, likely due to the platform's visual content and detailed product demonstrations.
- **Browsing:** 49% of respondents use **YouTube** for general browsing, further underscoring its popularity in providing engaging and informative content. These results concur with the assertion that YouTube is a vital platform for consumer research and discovery, supporting that visual content and video reviews are crucial in influencing consumer decisions (Gomez 2021).
- **Comparisons:** 44% of respondents utilise **Facebook** for product comparisons, demonstrating its role in helping consumers make informed decisions.

- **Post Reviews:** 32% of respondents choose **Facebook** to post product reviews, showing it as a critical platform for sharing consumer experiences.
- **Purchases:** 21% of respondents complete purchases directly on **Facebook**, indicating the platform's integration of e-commerce features that facilitate. This percentage indicates that while Facebook is highly influential in decision-making, the final purchase might still occur on other platforms or through direct brand websites. This divergence can be attributed to trust issues or user preferences for completing transactions on dedicated e-commerce platforms and a seamless shopping experience.

Table 7.12 Correlations – social media usage and engagement

Correlations			
		Social Engagemen t	Social usage in purchase behaviour
Social Engagement	Pearson Correlation	1	0.704**
	Sig. (2-tailed)		<.001
	N	428	428
Social usage in purchase behaviour	Pearson Correlation	0.704**	1
	Sig. (2-tailed)	<.001	
	N	428	428
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 7.12 highlights the relationship between social engagement and social media usage in purchase behaviour among the study's participants. The Pearson correlation coefficient for both variables is 0.704, indicating a strong positive correlation. This suggests that higher levels of social engagement are significantly associated with increased social media usage for purchase behaviour. The significance level (Sig. 2-tailed) for the correlation is <.001, which indicates that the relationship between the two variables is statistically significant at the 0.01 level. This means there is less than a 1% chance that this correlation occurred by random chance, underscoring the reliability of the findings.

The data strongly supports the conclusion that consumers who engage more actively with social media platforms are more likely to use those social media platforms when making purchasing decisions.

7.5 RISK

Table 7.13 Financial Risk

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
7.1.1 shopping online saves money.	428	2.3	7.0	6.1	14.5	15.9	25.2	29.0	5.26	1.656	6	4;7	-12.253	<.001*
7.1.2 credit card details are secure while shopping online.	428	1.9	3.3	5.4	17.5	19.6	28.3	24.1	5.31	1.462	6	4;6	-13.307	<.001*
7.1.3 Price calculations are always correct when purchasing online.	428	1.2	3.0	6.8	10.7	14.3	32.2	31.8	5.58	1.451	6	5;7	-14.838	<.001*
7.1.4 financial information (pins and passwords) is secure in online stores.	428	2.6	4.2	6.1	17.8	18.2	27.1	24.1	5.22	1.549	6	4;6	-12.407	<.001*
7.1.5 refund on online purchase	428	1.2	2.6	3.3	10.3	14.5	34.8	33.4	5.72	1.348	6	5;7	-15.497	<.001*

Table 7.13 evaluates respondents' perceptions of financial risk associated with online shopping across various questionnaire items. The mean values in descending order ranged from seven to one.

- The respondents have confidence in obtaining refunds. The Z value of -15.497 and a P value of $<.001^*$ suggest respondents have confidence in obtaining refunds (Mean 5.72) (Std. 1.348).
- Price calculations are always correct when making online purchases. The Z value of -14.838 and a P value $<.001^*$ underscore the significant confidence in the precision of online price calculations (Mean 5.58) (Std. 1.451).
- Credit card details are secure while shopping online. The Z value of -13.307 and a P value of $<.001^*$ suggest respondents expressed confidence in credit card security (Mean 5.31) (Std. 1.462).
- Shopping Online Saves Money. The Z value of -12.253 and a P value of $<.001^*$ suggest statistically solid significance, indicating a prevalent belief in the cost-saving aspect of online shopping (Mean 5.26) (Std 1.656).
- Financial information (PINs and passwords) is secure in online stores. The Z value of -12.407 and a P value of $<.001^*$ suggest that respondents generally feel secure about their financial information, highlighting the perceived security of pins and passwords in online stores (Mean 5.22) (Std 1.549).

Overall, respondents exhibit positive perceptions of financial risks when online shopping, emphasising confidence in cost savings, credit card security, accurate price calculations, financial information security and the ability to obtain refunds.

Table 7.14 Time-loss Risk

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
7.2.1 shopping online saves me time.	428	0.5	0.9	1.2	5.6	7.2	24.8	59.8	6.32	1.081	7	6;7	-17.616	<.001*
7.2.2 Online stores process purchase orders quickly.	428	0.7	2.3	4.0	9.1	13.6	30.6	39.7	5.83	1.334	6	5;7	-16.020	<.001*
7.2.3 Searching for information online saves me time.	428	0	0.2	0.5	3.5	7.7	33.9	54.2	6.37	.838	7	6;7	-18.057	<.001*
7.2.4 Returns, exchanges and refunds are done timeously online.	428	2.6	6.1	6.3	18.5	16.8	22.0	27.8	5.18	1.643	5	4;7	-11.787	<.001*

Table 7.14 assesses respondents' perceptions of time-saving aspects of online shopping, focusing on the time loss risk. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Searching for information online saves time. The Z value of -18.057 and a P value <.001* indicate a robust belief in the time efficiency of online information search (Mean 6.37) (Std. 0.838).
- Shopping online saves time. The Z value of -17.616 and a P value <.001* suggest statistically solid significance, emphasising a prevalent belief in the time efficiency of online shopping (Mean 6.32) (Std. 1.081).
- Online stores process purchase orders quickly. The Z value of -16.020 and a P value <.001* underscore the perceived efficiency in order processing (Mean 5.83) (Std. 1.334).
- Online returns, exchanges and refunds are done timeously. The Z value of -11.787 and a P value <.001* suggest a significant perception of the timely resolution of post-purchase processes (Mean 5.18) (Std. 1.643).

Overall, the results reflect positive perceptions regarding time-saving aspects of online shopping, emphasising efficiency at various stages.

Table 7.15 Transaction Risk

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	IQR	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Some what agree	Agree	Strongly agree						
7.3.1 Inserting banking details in an online store is safe	428	3.7	7.2	10.5	18.7	18.2	24.3	17.3	4.82	1.664	5	4;6	-9.080	<.001*
7.3.2 Banking details on a mobile shopping app are secure	428	3.3	5.6	7.2	16.6	17.3	29.7	20.3	5.09	1.610	5.50	4;6	-11.279	<.001*
7.3.3 Transactions and records are always correct	428	0.9	3.3	5.6	13.1	17.5	32.5	27.1	5.49	1.405	6	5;7	-14.570	<.001*
7.3.4 Providing Credentials (email address and password information) is always secure	428	5.6	6.3	11.0	14.5	17.8	22.7	22.2	4.89	1.777	5	4;6	-9.158	<.001*
7.3.5 My digital devices have an anti-virus installed	428	3.5	6.5	5.1	7.0	9.1	32.2	36.4	5.54	1.708	6	5;7	-13.448	<.001*

Table 7.15 depicts perceptions of transaction risk in online shopping, focusing on aspects related to the safety and security of financial transactions. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Digital devices have an antivirus installed. The Z value of -13.448 and a P value $<.001^*$ highlight the significance of antivirus measures in mitigating transaction risks (Mean 5.54) (Std. 1.708).
- Transactions and records are always correct. The Z value of -14.570 and a P value $<.001^*$ emphasise the perceived reliability of online transaction records (Mean 5.49) (Std. 1.405).
- Banking details on a mobile shopping app are secure. The Z value of -11.279 and a P value $<.001^*$ suggest a significant belief in protecting financial information on mobile platforms. (Mean 5.09) (Std. 1.610).
- Providing credentials (email address and password information) is always secure. The Z value of -9.158 and a P value $<.001^*$ indicate a statistically significant perception of security (Mean 4.89) (Std. 1.777).
- Inserting banking details in an online store is safe. The Z value of -9.080 and a P value $<.001^*$ indicate a statistically significant perception of safety (Mean 4.82) (Std. 1.664).

Overall, the results reflect a positive perception of the security and safety of online transactions, with respondents trusting the online shopping environment.

Table 7.16 Logistics Risk

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
7.4.1 Products are always delivered to the correct address.	428	1.2	1.6	4.7	7.2	11.4	33.6	40.2	5.88	1.330	6	5;7	-16.143	<.001*
7.4.2 The specific orders/products are always delivered.	428	0.7	2.3	6.5	7.2	16.1	32.2	34.8	5.72	1.364	6	5;7	-15.737	<.001*
7.4.3 Products are always received in good condition.	428	1.2	3.3	5.1	7.2	15.2	35.5	32.5	5.68	1.396	6	5;7	-15.341	<.001*
7.4.4 Delivery is always on time.	428	1.4	6.8	10.5	9.1	20.8	25.2	26.2	5.21	1.614	6	4;7	-12.350	<.001*
7.4.5 Products are always delivered as specified.	428	0.7	4.0	7.2	8.9	14.3	33.2	31.8	5.59	1.453	6	5;7	-14.958	<.001*

Table 7.16 assesses perceptions of logistics risks in the delivery of products. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Products are always delivered to the correct address. The Z value of -16.143 and a P value <.001* indicate a robust consensus (Mean 5.88) (Std. 1.330).
- The specific orders/products are always delivered. The Z value of -15.737 and a P value <.001* emphasise the perceived consistency in fulfilling particular orders (mean 5.72) (Std. 1.364).
- Products are always received in good condition. The Z value of -15.341 and a P value <.001* highlight the perceived effectiveness in maintaining product quality during transportation (Mean 5.68) (Std. 1.396).
- Products are always delivered as specified. The Z value of -14.958 and a P value of <.001* indicate a slightly lower consensus than other aspects (Mean 5.59) (Std. 1.453)
- Delivery is always on time. The Z value of -12.350 and a P value of <.001* (Mean 5.21) (Std. 1.614).

The results reflect positive perceptions of logistics processes, particularly regarding accuracy, reliability and product condition during delivery.

7.6 RELIABILITY STATISTICS

Accuracy in measurements hinges on consistency and legitimacy, with reliability determined by assessing various dimensions of identical issues. A reliability score of 0.70 or higher is considered "acceptable" (Uzun, Gilbertson, Keles and Ratinen 2019: 82).

Table 7.17 Cronbach Alpha

Construct	Label	Items included	Cronbach's alpha
Social media	SM	6.1.2,6.1.3,6.1.4,6.1.5	0.868
Logistics Risk	R_log	8.4.1 – 8.4.5	0.893
Transaction Risk	R_trans	8.3.1 – 8.3.4	0.884
Time loss risk	R_time	8.2.1 – 8.2.3	0.701
Financial risk	R_fin	8.1.1 – 8.1.5; 8.2.4	0.834

As displayed in Table 7.17, Cronbach's Alpha values indicate each construct's internal consistency and reliability, with higher values suggesting greater reliability. The reliability scores for each section surpass the endorsed Cronbach's alpha value, indicating adequate, reliable recording for these study parts.

7.7 FACTOR ANALYSIS

Factor analysis involves reducing measurable and observable variables to latent ones, uncovering underlying patterns and categorising them as dimensionality cuts (Maydeu-Olivares, Shi and Rosseel 2019: 4). These latent features, though not precisely measured, serve as conceptual estimates representing variables (Maydeu-Olivares, Fairchild and Hall, 2017: 498). The technique evaluates potential relationships among variables within a dataset. Handling extensive data with numerous variables is simplified by grouping sets of variables, effectively placing correlated variables into cohesive clusters. Factor analysis proves valuable in research dealing with both limited and extensive variables, encompassing elements from surveys or assessments, allowing for a reduction to a more concise set to unveil fundamental concepts and facilitate interpretations (Maydeu-Olivares, Shi and Rosseel 2019: 5). This method streamlines the focus onto critical aspects, eliminating the need to consider numerous potentially insignificant variables, making factor analysis an effective tool for organising variables into meaningful groups.

Table 7.18 Factor Loadings Risk

	Factor			
	1	2	3	4
8.4.5 Products are always delivered as specified	0.927			
8.4.3 Products are always received in good condition	0.915			
8.4.2 The specific orders/products are always delivered	0.722			
8.4.4 Delivery is always on time	0.715			
8.4.1 Products are always delivered to the correct address	0.607			
8.3.1 Inserting banking details in an online store is safe		0.919		
8.3.2 Banking details on a mobile shopping app are secure		0.891		
8.3.4 Providing Credentials (email address and password information) is always secure		0.709		
8.3.3 Transactions and records are always correct		0.367		
8.2.1 shopping online saves me time			0.863	
8.2.3 Searching for information online saves me time			0.640	
8.2.2 Online stores process purchase orders quickly			0.461	
8.1.2 My credit card details are secure while shopping online				0.745
8.1.4 My financial information (pins and passwords) is secure in online stores				0.722
8.1.3 Price calculations are always correct when making online purchases				0.588
8.2.4 Returns, exchanges and refunds are done timeously online				0.490
8.1.5 I can get a refund on my purchase online				0.376
8.1.1 Shopping Online Saves Me Money				0.360

As indicated in Table 7.18, factor analysis with Promax rotation was applied to the 19 items measuring risk. Item 7.3.5 was dropped because it did not load strongly enough onto any factor. Four factors were extracted, which account for 59.01% of the variance in the data. A Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) of .927 and a significant Bartlett's test indicate that the data were adequate for successful and reliable extraction. Rotation converged in 7 iterations.

Table 7.19 Practical implications for consumers

Factor	Practical Implications for Customers
Factor 1 – Logistics and Fulfilment Reliability Risk	Delivery failure erodes trust; delays, incorrect items, or damaged goods increase perceived risk and dissatisfaction.
Factor 2 – Financial and Personal Information Security Risk	Security breaches can cause direct financial loss, identity theft, and reduce willingness to shop online.
Factor 3 – Convenience and Time Efficiency Risk	If online shopping is slow (due to slow websites, long processing times), the perceived convenience advantage is lost.
Factor 4 – Payment, Price Accuracy, and After-Sales Service Risk	Concerns about incorrect pricing, difficulty obtaining refunds, or insecure payment processing may discourage repeat purchases.

Table 7.19 highlights how each identified risk factor in online shopping impacts customers directly. Factor 1 shows that unreliable delivery, whether late, incorrect, or damaged, quickly undermines trust. Factor 2 emphasises that breaches of financial or personal data can cause serious harm, from monetary loss to identity theft, reducing customers' willingness to buy online. Factor 3 reveals that if the process is slow or inefficient, shoppers lose the very convenience they seek. Finally, Factor 4 points to concerns about payment security, pricing accuracy, and refund processes, where any negative experience can deter future purchases. Together, these factors illustrate that customers' perceptions of risk shape their trust, satisfaction, and loyalty in online shopping.

7.8 SUMMARY

This chapter provided a comprehensive analysis of the findings regarding social media usage, engagement and the associated risks in online shopping, building upon the demographic insights established in chapter six. Overall, the findings presented in this chapter reinforce the significance of social media as a pivotal tool in the modern consumer's shopping experience, with implications for marketers to enhance engagement strategies. The assessment of perceived risks indicates consumers' confidence in navigating online shopping environments, further supporting social media integration into marketing practices. The insights derived from this analysis contribute to a deeper understanding of consumer behaviour in the context of social media and online retailin

CHAPTER EIGHT: FINDINGS, ANALYSIS AND INTERPRETATION

HIGH-INVOLVEMENT PRODUCT (SMARTPHONE) AND LOW-INVOLVEMENT PRODUCT (GROCERIES)

8.1 INTRODUCTION

This chapter presents the results and interprets the data collected on the factors influencing consumer decision-making for high-involvement products (smartphones) and low-involvement products (groceries). The questionnaire was administered to 3760 respondents for primary data collection. The data about the objectives outlined in Chapter One was analysed using SPSS (version 28) and AMOS (IBM Version 28). The coded and edited data were initially loaded into SPSS 28 for descriptive analysis, which involved calculating the mean, standard deviation, reliability (Cronbach's alpha), validity (discriminant validity) and the correlation matrix. Subsequently, the data was transferred to Amos 28 for further inferential analysis using SEM. In SEM, confirmatory factor analysis (CFA) was performed first to assess model fit and calculate composite reliability (CR) and average variance extracted (AVE) for each construct. The ultimate step involved path modelling to test the hypothesised relationships, leading to either accepting or rejecting the hypotheses presented in chapter one. The results are structured in two parts: the first part provides descriptive findings of the study, while the second part presents the inferential results.

8.2 ANALYSIS BASED ON EMPIRICAL FINDINGS — SHOPPER BEHAVIOUR OMNICHANNEL

In this study, descriptive statistics were employed to outline the essential characteristics of the data. Descriptive statistics helped condense and summarise the extensive data set coherently. The analysis and presentation of results based on the empirical findings are presented in this section. The empirical study was structured in three parts. The first part presents the findings of pre-purchase behaviour awareness (browsing and shopping, searching for information and evaluating information). In contrast, the second part presents the results of purchase behaviour (collection/delivery and payment methods) and the third part presents the results of post-purchase behaviour (satisfaction and dissatisfaction).

8.2.1 Pre-purchase

Table 8. 1a Awareness (Browsing and Shopping - Smartphone)

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	IQR	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
4.1.1 View smartphones online and shop online.	428	2.8	5.6	5.8	9.6	12.9	30.4	32.9	5.47	1.640	6	5;7	-13.401	<.001*
4.1.2 Look in-store for smartphones and shop in-store.	428	2.3	5.6	6.3	13.5	16.6	30.8	25.0	5.29	1.580	6	4;6.75	-12.679	<.001*
4.1.3 Scroll through smartphones online and shop in-store.	428	1.2	4.2	2.3	7.9	14.3	29.4	40.7	5.81	1.418	6	5;7	-15.515	<.001*
4.1.4 Browse smartphones in-store and shop online.	428	8.4	17.8	10.0	15.0	12.1	21.0	15.7	4.30	1.964	4	2;6	-3.199	<.001*

Table 8.1a depicts respondents' awareness (browsing and shopping) of smartphones. The mean values are arranged in descending order:

- Firstly, a considerable number of respondents (mean value of 5.81 and Std. of 1.418) prefer to browse smartphones online and then purchase them in-store. The Z value of -15.515 and the highly significant P value of <.001 indicate a strong tendency towards this behaviour.
- Secondly, respondents preferred viewing smartphones online before shopping online (mean value of 5.4 and Std. 1.640). The significant Z value of -13.401 and significant P value of <.001 reinforce this trend.
- Thirdly, for those looking for in-store smartphones, the mean value is 5.29 and the Std. value is 1.580, suggesting that in-store shopping remains popular but slightly less than online browsing.
- Fourthly, the least favourable response with a mean value of 4.30 and a Std. value of 1.964, indicating that browsing in-store and purchasing online is less common, is reflected by a Z value of -3.199; however, a significant P value of <.001.

Overall, the data indicates that while online engagement is high, many consumers still prefer the tactile experience of in-store shopping.

Table 8. 1b Awareness (Browsing and Shopping - Groceries food items)

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	IQR	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Some what agree	Agree	Strongly agree						
5.1.1 View groceries online and shop online.	428	5.6	11.2	3.5	9.3	15.0	27.3	28.0	5.11	1,879	6	4;7	-10.016	<.001*
5.1.2 Look for groceries in-store and shop in-store.	428	1.2	3.0	1.6	4.0	5.4	29.0	55.8	6.20	1.289	7	6;7	-16.916	<.001*
5.1.3 Scroll through groceries online and shop in-store.	428	2.6	6.3	5.1	8.4	11.7	26.6	39.3	5.57	1.669	6	5;7	-13.852	<.001*
5.1.4 Browse groceries in-store and shop online.	428	16.8	25.5	7.7	13.8	9.1	13.1	14.0	3.68	2.096	3.50	2;6	-2.890	.004

Table 8.1b depicts awareness regarding browsing and shopping for groceries (food items). The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- The majority of respondents prefer looking for groceries in-store and purchasing in-store. The high mean value is 6.20 and the Std. value is 1.289, a Z value of -16.916 and a highly significant P value of <.001* highlight this strong tendency.
- A notable proportion of respondents engage in online grocery viewing but opt for in-store shopping. A Z value of -13.852 and a highly significant P value of <.001* underscore this interesting pattern with a mean value of 5.57 and a Std. value of 1.669.
- Respondents show a moderate inclination to view and shop for groceries online, indicated by a mean value of 5.11, a Std. value of 1.879, a Z value of -10.016 and a highly significant P value of <.001*.
- Some respondents browse groceries in-store and a relatively smaller percentage proceed to shop online. A mean value of 3.68, a Std. value of 2.096, a Z value of -2.890 and a significant P value of .004 indicate this contrasting behaviour.

Table 8. 2a Search for information - Smartphone

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
4.2.1 Web rooming (searching for information online and purchasing the smartphone in-store).	428	1.9	4.7	4.0	11.9	12.9	31.5	33.2	5.57	1.525	6	5;7	-14.222	<.001*
4.2.2 Showrooming (gathering information, examining smartphones in-store and purchasing the smartphone online).	428	9.3	10.4	12.4	14.3	13.3	20.1	14.3	4.23	1.948	4	2;6	-2.471	.013*

Table 8.2a displays the search for information when shopping for a smartphone. The mean values range from a maximum of seven to a minimum of one. The mean values in descending order are:

- Respondents strongly favour webrooming with a mean value of 5.57 and Std. value of 1.525, indicating a significant inclination towards searching for smartphone information online and making purchases in-store. The Z value of -14.222 and the highly significant P value of $<.001^*$ underscore the dominance of this consumer behaviour.
- Some respondents opt for showrooming, gathering in-store information and making online purchases. The mean value of 4.23, the Std. value of 1.948, the Z value of -1.264 and a non-significant P value of .206 indicate a less pronounced inclination towards this behaviour.

Table 8. 2b Search for information - Groceries food items

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	IQR	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Some what agree	Agree	Strongly agree						
5.2.1 Web rooming (searching for information online and purchasing groceries offline).	428	2.3	6.8	3.7	11.2	13.6	28.3	34.1	5.48	1.633	6	5;7	-13.410	<.001*
5.2.2 Showrooming (gathering information, examining groceries in-store and purchasing groceries online).	428	13.8	22.2	10.0	14.5	11.7	13.1	14.7	3.86	2.046	4	2;6	-1.264	0.206

Table 8.2b shows the search for information when shopping for groceries—food items. The mean values range from a maximum of seven to a minimum of one. The mean values in descending order are:

- Respondents express a notable preference for webrooming, signifying the inclination to gather information online and make grocery purchases offline, with a mean value of 5.48 and Std. value of 1.633. The high Z value of -13.410 and highly significant P value of <.001* suggest a strong trend towards this behaviour.
- There is a notable preference for showrooming with a mean value of 3.86 and Std. value of 2.046, where individuals gather information and examine groceries in-store before purchasing online. The Z value of -2.471 and a significant P value of .013* suggest a distinct yet less prominent trend compared to webrooming.

Table 8. 3a Evaluation of information - Smartphone

Questionnaire Items	N	Very Unimportant	Unimportant	Slightly Important	Slightly Important	Important	Very Important	Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
4.3.1 Price and Discounts.	428	2.6	1.4	1.9	7.9	24.8	61.4	5.35	1.088	6	5;6	-16.982	<.001*
4.3.2 Quality of the smartphone.	428	2.1	0	1.2	0.2	16.4	80.1	5.69	.843	6	6;6	-18.363	<.001*
4.3.3 Brand of smartphone.	428	1.4	0.9	2.1	13.1	22.4	60.0	5.34	1.004	6	5;6	-17.484	<.001*
4.3.4 User-friendly	428	1.4	0.7	1.6	4.2	23.6	68.5	5.34	.893	6	5;6	-17.961	<.001*
4.3.5 Payment options (Card and Mobile).	428	0.5	3.7	5.6	14.0	28.5	47.7	5.09	1.116	5	5;6	-16.634	<.001*
4.3.6 Previous shopping experience.	428	0.9	3.5	6.3	17.5	36.2	35.5	4.91	1.115	5	4;6	-15.988	<.001*
4.3.7 Trustworthiness of Vendor.	428	0.9	0.5	0.9	3.3	24.5	69.9	5.60	.779	6	5;6	-18.288	<.001*
4.3.8 Word-of-mouth (Recommendations from friends and family, customer reviews).	428	1.6	4.2	5.8	25.5	30.8	32.0	4.76	1.180	5	4;5	-15.031	<.001*
4.3.9 Information Security.	428	0.7	0.7	1.4	7.9	24.3	65.0	5.49	.848	6	5;6	-18.120	<.001*
4.3.10 Payment vendors (PayPal, Apple Pay, etc.).	428	0.9	3.7	4.9	16.6	28.0	45.8	5.04	1.143	5	4;6	-16.325	<.001*
4.3.11 Delivery/Collection Options.	428	0.5	2.8	3.0	9.8	25.0	58.9	5.33	1.015	6	5;6	-17.526	<.001*

Table 8.3a depicts the evaluation of information when shopping for smartphones. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- <.001* Quality is crucial, as indicated by the high mean value of 5.69 and Std. value of 0.843. The Z value of -18.363 and a highly significant P value of <.001* underscore the paramount importance of smartphone quality to the respondents.
- Trust in the vendor is highly important, as evidenced by the robust mean value of 5.60 and Std. value of 0.779. The Z value of -18.288 and a highly significant P value of <.001* emphasise the significance of vendor trustworthiness.
- Information security is crucial, with a substantial mean value of 5.49 and Std. value of 0.848. The Z value of -18.120 and a highly significant P value of <.001* highlight the importance of secure transactions.
- Respondents overwhelmingly prioritise price and discounts, with a substantial mean value of 5.35 and Std. value of 1.088, indicating their significance in smartphone purchasing decisions. The Z value of -16.982 and a highly significant P value of <.001* emphasise the strong consensus on this factor.
- Brand reputation plays a significant role, with a notable mean value of 5.34 and Std. value of 1.004. The Z value of -17.484 and a highly significant P value of <.001* highlight the impact of brand perception on consumer choices when searching for smartphones.
- User-friendliness is a key factor, as reflected in the high mean value of 5.34 and Std. value of 0.893. The Z value of -17.961 and a highly significant P value reflect the emphasis on user-friendly features.
- Choices of delivery/collection options are essential, with a substantial mean value of 5.33 and Std. value of 1.015. The Z value of -17.526 and a highly significant P value of <.001* emphasise the significance of flexible delivery solutions.
- Diverse payment options are moderately important, with a solid mean value of 5.09 and Std. value of 1.116. The Z value of -16.634 and a highly significant P value of <.001* indicate the relevance of flexible payment choices.
- The availability of varied payment vendors is moderately significant, as indicated by the mean value of 5.04 and Std. value of 1.143. The Z value of -16.325 and the highly significant P value of <.001* emphasise the relevance of diverse payment options.
- Past shopping experiences contribute to decision-making, supported by a moderate mean value of 4.91 and a Std. value of 1.115. The Z value of -15.988 and a highly significant P value of <.001* suggest the influence of prior interactions.

- Recommendations from friends, family and customer reviews hold moderate importance, with a reasonable mean value of 4.76 and Std. value of 1.180. The Z value of -15.031 and a highly significant P value of $<.001^*$ suggest their role in decision-making.

Table 8. 3b Evaluation of information - Groceries food items

Questionnaire Items	N	Very Unimportant	Unimportant	Slightly Important	Slightly Important	Important	Very Important	Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
5.3.1 Price and discounts.	428	1.2	0.7	1.2	6.3	19.4	71.3	5.56	.873	6	5;6	18.174	<.001*
5.3.2 Quality of the groceries (food items).	428	0.9	0.2	0.5	2.1	15.9	80.4	5.73	.696	6	6;6	18.823	<.001*
5.3.3 Brand of groceries (food items).	428	1.2	4.2	5.1	19.4	25.5	44.6	4.98	1.189	5	4;6	15.912	<.001*
5.3.4 User-friendly.	428	1.4	2.3	2.3	10.0	30.6	53.5	5.26	1.047	6	5;6	17.040	<.001*
5.3.5 Payment options (Card and Mobile).	428	1.2	4.2	3.3	13.1	25.0	53.5	5.16	1.156	6	5;6	16.587	<.001*
5.3.6 Previous shopping experience.	428	0.7	1.2	4.2	8.4	31.8	53.7	5.31	.957	6	5;6	17.565	<.001*
5.3.7 Trustworthiness of Vendor.	428	1.2	0	0.7	3.7	25.5	68.9	5.59	.770	6	5;6	-18.209	<.001*
5.3.8 Word-of-mouth (Recommendations from friends and family, customer reviews).	428	1.6	5.1	5.8	19.9	30.6	36.9	4.83	1.225	5	4;6	-15.059	<.001*
5.3.9 Information Security.	428	0.7	0.9	3.7	11.9	25.9	56.8	3.32	.966	6	5;6	17.636	<.001*
5.3.10 Payment vendors (PayPal, Apple Pay, etc.).	428	2.1	7.2	10.3	18.0	24.8	37.6	4.69	1.365	5	4;6	13.572	<.001*
5.3.11 Delivery/Collection Options.	428	1.4	4.7	6.1	12.4	23.1	52.3	5.08	1.238	6	5;6	-16.071	<.001*

Table 8.3b depicts the evaluation of information when shopping for groceries—food items. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- The quality of groceries is paramount for respondents, as evidenced by the high mean value of 5.73 and Std. value of 0.696. The Z value of 18.823 and a highly significant P value of $<.001^*$ emphasise the critical role of grocery (food item) quality in their decision-making.
- Trustworthiness is a critical factor, with a mean value of 5.59 and a Std. value of 0.770. The exceptionally low Z value of -18.209 and a highly significant P value of $<.001^*$ highlight the paramount importance of vendor trustworthiness in the respondents' decision-making.
- Respondents prioritise price and discounts, with an essential mean value of 5.56 and Std. value of 0.873, indicating a solid inclination to consider these factors in their grocery purchasing decisions. The exceptionally high Z value of 18.174 and an exceptionally low P value of $<.001^*$ underscore the paramount importance of this aspect.
- A positive previous shopping experience holds substantial weight, as evidenced by the mean value of 5.31 and Std. value of 0.957. The Z value of 17.565 and an exceptionally low P value of $<.001^*$ emphasise the impact of past experiences on current decisions.
- Respondents value user-friendliness, reflected in the mean value of 5.26 and Std. value of 1.047. The Z value of 17.040 and an exceptionally low P value of $<.001^*$ affirm the importance of a user-friendly experience in their grocery shopping.
- Diverse payment options, including cards and mobile, are of considerable importance, as suggested by the mean value of 5.16 and Std. value of 1.136. The Z value of 16.587 and a highly significant P value of $<.001^*$ reinforce the significance of varied payment methods.
- The variety of delivery and collection options is essential, as suggested by the mean value of 5.08 and Std. value of 1.238. The Z value of -16.071 and a highly significant P value of $<.001^*$ underscore the significance of flexible delivery choices.
- Brand plays a role; it is relatively less crucial than price and quality, as indicated by the mean value of 4.98 and Std. value of 1.189. The Z value of 15.912 and a significant P value of $<.001^*$ highlight the moderate importance assigned to the brand.
- Recommendations from friends and family and customer reviews play a significant role, as indicated by the mean value of 4.83 and Std. value of 1.225. The Z value of -15.059 and a highly significant P value of $<.001^*$ underscore the impact of word of mouth on decision-making.

- The choice of payment vendors, such as PayPal and Apple Pay, holds moderate importance, with a mean value of 4.69 and Std. value of 1.365. The Z value of 13.572 and a highly significant P value of $<.001^*$ emphasise the role of convenient payment methods.
- Information security is moderately essential, with a mean value of 3.32 and Std. value of 0.966. The Z value of 17.636 and an exceptionally low P value of $<.001^*$ highlight the significance of secure online transactions.

8.2.2 Purchase

Table 8. 4a Collection and Delivery of the Smartphone

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	IQR	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
4.4.1 Purchase smartphones online and collect them in-store.	428	8.9	15.7	11.4	15.9	15.2	18.9	14.0	4.26	1.911	4	3;6	-2.675	.007
4.4.2 Purchase smartphones online and receive them via delivery.	428	6.1	10.5	7.7	10.5	10.0	19.2	36.0	5.09	1.991	6	4;7	-10.136	<.001*
4.4.3 Purchase smartphones in-store and collect them in-store.	428	2.3	7.2	4.4	11.4	10.3	25.5	38.8	5.52	1.692	6	4;7	-13.545	<.001*
4.4.4 Purchase smartphones in-store and receive delivery of the smartphone.	428	11.0	20.6	11.0	16.6	10.5	13.8	16.6	4.03	2.020	4	2;6	-.587	.557
4.4.5 Purchases and collects curb side.	428	12.6	21.7	11.4	19.9	10.7	13.8	9.8	3.75	1.899	4	2;5	-2.633	.008

Table 8.4a displays the collection and delivery when shopping for smartphones. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Opting for in-store purchases with in-store collection is a popular choice among respondents, as indicated by a mean value of 5.52 and Std. value of 1.692. The Z value of -13.545 and a highly significant P value of $<.001^*$ highlight the substantial preference for this traditional approach.
- Buying smartphones online with home delivery is a prevalent option, supported by the mean value of 5.09 and Std. value of 1.991. The Z value of -10.136 and a highly significant P value of $<.001^*$ underscore the strong inclination towards this convenient method.
- A significant portion of respondents strongly prefer purchasing and collecting smartphones in-store, with a mean value of 4.26 and Std. value of 1.911. The Z value of -2.675 and a P value of .007 indicate statistical significance, highlighting a divided preference for this choice.
- A moderate preference is observed for in-store purchases with home delivery for smartphones, with a mean value of 4.03 and Std. value of 2.020. The Z value of -.587 and a non-significant P value of .557 suggest a lack of statistical significance in this choice.
- The least preferred option is online purchases with curbside collection, reflecting a lower mean value of 3.75 and Std. value of 1.899. The Z value of -2.633 and a P value of .008 indicate statistical significance, emphasising the lesser popularity of this method for smartphone purchases.

Table 8. 4b Collection and Delivery of the Groceries food items

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
5.4.1 Purchase groceries (food items) online and collect them in-store.	428	13.6	25.0	7.5	16.6	11.2	13.1	13.1	3.79	2.018	4	2;6	-2.142	.032
5.4.2 Purchase groceries (food items) online and receive them via delivery.	428	4.7	11.9	3.7	7.7	13.8	23.4	34.8	5.23	1.904	6	4;7	-11.019	<.001*
5.4.3 Purchase groceries (food items) in-store and collect them in-store.	428	0.9	1.4	2.1	5.4	9.3	27.3	53.5	6.17	1.211	7	6;7	-17.045	<.001*
5.4.4 Purchase groceries (food items) in-store and receive delivery of the groceries	428	13.8	22.4	10.0	14.0	10.3	14.3	15.2	3.88	2.067	4	2;6	-.977	.328
5.4.5 Purchase groceries (food items) online and collect them curbside.	428	13.6	22.2	7.0	20.1	12.4	12.6	12.1	3.82	1.969	4	2;5	-2.010	.044

Table 8.4b displays the collection and delivery of food items when grocery shopping. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Respondents strongly prefer in-store grocery purchases to the in-store collection, as evidenced by the high mean value of 6.17 and Std. value of 1.211. The Z value of -17.045 and a highly significant P value of $<.001^*$ emphasise the significance of this choice.
- The preference for online grocery purchases with home delivery is substantial, reflected in the mean value of 5.23 and Std. value of 1.904. The Z value of -11.019 and a highly significant P value of $<.001^*$ underline the strong inclination towards this mode.
- The preference for in-store grocery purchases with delivery is moderate, with a mean value of 3.88 and Std. value of 2.067. The non-significant Z value of -0.977 and a P value of .328 suggest a balanced sentiment towards this option.
- Respondents exhibit a moderate preference for online grocery purchases with curbside collection, with a mean value of 3.82 and a Std. value of 1.969. The Z value of -2.010 and a significant P value of .044 indicate a notable inclination towards this choice.
- Respondents show a moderate inclination towards online grocery purchases with in-store collection, with a mean value of 3.79 and Std. value of 2.018. The Z value of -2.142 and a significant P value of .032 indicate a noteworthy preference for this option.

Table 8. 5a Payment methods when purchasing a Smartphone.

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	IQR	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
4.5.1 Pay for a smartphone using a credit/debit card while in-store.	428	2.1	3.5	1.4	4.2	7.7	33.9	47.2	6.02	1.391	6	6;7	-16.003	<.001*
4.5.2 Pay for the smartphone using a mobile phone while in-store.	428	7.9	14.3	8.2	20.3	13.1	18.0	18.2	4.43	1.918	4	3;6	-4.486	<.001*
4.5.3 Pay cash on delivery (COD) for the smartphone when purchasing online.	428	14.7	16.6	9.1	12.4	10.3	18.0	18.9	4.14	2.142	4	2;6	-1.601	.109
4.5.4 Pay for the smartphone via payment apps (PayPal, Samsung Pay, etc.).	428	8.6	13.6	5.9	16.1	12.6	18.7	21.5	4.53	1.988	5	3;6	-5.294	<.001*
4.5.5 Pay for the smartphone using a credit/debit card when purchasing online.	428	4.0	6.1	2.8	10.3	11.7	26.9	38.3	5.54	1.709	6	5;7	-13.185	<.001*

Table 8.5a presents the payment methods when purchasing a smartphone. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Respondents strongly agree or agree to pay in-store for smartphones using credit/debit cards. The high mean value of 6.02, a Std. value of 1.391, a Z value of -16.003 and a highly significant P value of $<.001^*$ underscores the clear preference for this payment method.
- Respondents prefer using credit/debit cards when purchasing smartphones online. This preference is highlighted by a mean value of 5.54, a Std. value of 1.709, a Z value of -13.185 and a highly significant P value of $<.001^*$, emphasising the strong inclination towards this payment method.
- Smartphones paying through apps like PayPal and Samsung Pay garner moderate agreement, with a mean value of 4.53 and a Std. of 1.988. The Z value of -5.294 and a highly significant P value $<.001^*$ highlight the noteworthy preference for this digital payment method.
- Using mobile phones when purchasing smartphones for in-store payments is moderately preferred, with respondents showing a mix of agreement levels. The mean of 4.43, the Std. value of 1.918, the Z value of -4.486 and a highly significant P value of $<.001^*$ indicate a notable inclination towards this payment option.
- Choosing cash on delivery for online smartphone purchases results in a moderate level of agreement, with a mean value of 4.14 and a Std. value of 2.142. The non-significant P value of .109 suggests a lack of statistical significance in this choice, possibly due to varying preferences among respondents.

Table 8. 5b Payment methods when purchasing groceries—food items.

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
5.5.1 Pay using a credit/debit card while in-store.	428	1.2	0.2	0	2.6	4.9	33.4	57.7	6.41	.945	7	6;7	-17.651	<.001*
5.5.2 Pay using a mobile phone while in-store.	428	5.8	13.8	8.2	14.5	12.1	21.5	24.1	4.74	1.941	5	3;6	-7.455	<.001*
5.5.3 Pay cash on delivery (COD) when purchasing online.	428	10.5	18.7	6.5	14.3	10.3	18.0	21.7	4.36	2.102	4.50	2;6	-3.618	<.001*
5.5.4 pay via payment apps when buying online (PayPal, Samsung Pay, etc.).	428	7.0	11.4	4.7	15.2	15.7	21.5	24.5	4.84	1.915	5	4;6	-7.886	<.001*
5.5.5 Pay using a credit/debit card when purchasing online.	428	2.8	3.7	1.9	7.9	7.7	31.8	44.2	5.86	1.513	6	6;7	-15.100	<.001*

Table 8.5b presents the payment methods when purchasing groceries—food items. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Respondents strongly prefer using credit/debit cards for in-store payments, as indicated by the high mean value of 6.41 and Std. value of 0.945. The significant negative Z value of -17.651 and P value of $<.001^*$ underscore the overwhelming preference for this payment method.
- Respondents also strongly prefer using credit/debit cards for online grocery purchases, as indicated by the high mean value of 5.86 and Std. value of 1.513. The significant negative Z value of -15.100 and a P value of $<.001^*$ underline the overwhelming preference for this payment method.
- The choice of payment apps (PayPal, Samsung Pay, etc.) in online shopping is moderate, reflected in the mean value of 4.84 and the Std. value of 1.915. The Z value of -7.886 and a highly significant P value of $<.001^*$ highlight a substantial inclination towards this payment method.
- The choice of mobile phone payments in-store is moderate, with a mean value of 4.74 and a Std. value of 1.941. The Z value of -7.455 and a highly significant P value of $<.001^*$ highlight a substantial inclination towards this payment method.
- Respondents exhibit a moderate preference for cash on delivery (COD) when making online grocery purchases, with a mean value of 4.36 and a Std. value of 2.102. The Z value of -3.618 and a significant P value of $<.001^*$ emphasise the noteworthy preference for this method.

8.2.3 post-purchase

Table 8. 6a Satisfaction - Smartphone

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
4.6.1 After I purchase a smartphone, take a photo and post it online.	428	17.5	18.2	6.5	11.9	8.2	18.0	19.6	4.07	2.224	4	2;6	-.665	.506
4.6.2 Advise friends, family and colleagues to purchase the same smartphone I bought.	428	4.0	7.7	5.1	11.4	18.0	25.5	28.3	5.21	1.731	6	4;7	-11.416	<.001*
4.6.3 Recommend friends, family and colleagues to preferred retailer.	428	2.1	3.5	1.4	4.2	16.6	33.6	38.6	5.85	1.373	6	5;7	-15.531	<.001*
4.6.4 Post reviews of the smartphone I purchased on social media networking sites.	428	9.3	13.3	7.2	14.3	11.4	21.5	22.9	4.61	2.029	5	3;6	-5.865	<.001*
4.6.5 Make a repeat purchase of the smartphone.	428	9.6	15.2	9.3	20.3	12.1	17.1	16.4	4.27	1.943	4	3;6	-2.827	<.001*

Table 8.6a presents post-purchase behaviour satisfaction when purchasing smartphones. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- There is a significant inclination among respondents to recommend their preferred retailer to friends, family and colleagues. The high mean value of 5.85, a Std. value of 1.373, a Z value of -15.531 and a highly significant P value of $<.001^*$ underscore a clear preference for promoting their retailer of choice.
- A substantial number of respondents actively advise friends, family and colleagues to buy the same smartphone they purchased. The high mean value of 5.21, a Std. value of 1.731, a Z value of -11.416 and a highly significant P value of $<.001^*$ indicate a strong positive inclination towards recommending their chosen smartphone.
- Respondents moderately engage in posting reviews of the purchased smartphone on social media networking sites. The mean value of 4.61, a Std. value of 2.029, the Z value of -5.865 and a highly significant P value $<.001^*$ highlight a notable but not overwhelming trend towards this behaviour.
- Respondents exhibit a moderate inclination towards repeat purchases of the same smartphone. The mean value of 4.27, a Std. value of 1.943, a Z value of -2.827 and a highly significant P value of $<.001^*$ suggest a notable but not overwhelming tendency to stick with the same brand for future purchases.
- Respondents tend to take photos and post them online after purchasing a smartphone. The mean value of 4.07, a Std. value of 2.224 and a non-significant P value of .506 suggest a neutral attitude without a strong inclination towards or against this behaviour.

Table 8. 6b Satisfaction – Groceries (food items)

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree						
5.6.1 Take photos of the groceries I purchase and post them online.	428	33.4	21.0	6.3	12.4	7.7	9.1	10.0	3.07	2.100	2	1;5	-8.374	<.001*
5.6.2 Advise friends, family and colleagues to purchase the groceries (food items) I bought.	428	7.0	7.9	3.5	9.8	16.4	23.8	31.5	5.18	1.884	6	4;7	-10.367	<.001*
5.6.3 Recommend that friends, family and colleagues purchase groceries (food items) from preferred retailers.	428	3.5	3.5	2.8	11.0	14.7	28.3	36.2	5.60	1.575	6	5;7	-13.883	<.001*
5.6.4 Post reviews of the groceries on social media networking sites.	428	19.6	15.0	7.2	14.3	10.0	14.7	19.2	4.01	2.205	4	2;6	.064	.949
5.6.5 Make repeat purchases of the groceries.	428	0.7	2.8	2.6	5.4	10.5	30.6	47.4	6.04	1.285	6	6;7	-16.643	<.001*

Table 8.6b presents the satisfaction of post-purchase behaviour when purchasing groceries (food items). The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Respondents overwhelmingly make repeat purchases of groceries, as evidenced by the high mean value of 6.04 and a Std. Dev value of 1.285. The significant negative Z value of -16.643 and P value $<.001^*$ highlight a solid loyalty to specific grocery brands.
- Respondents strongly recommend their preferred retailer for grocery purchases, with a mean value of 5.60 and a Std. Dev value of 1.575. The significant negative Z value of -13.883 and P value of $<.001^*$ underscore the strong advocacy for this behaviour.
- Respondents generally express a positive attitude, with a mean value of 5.18 and a Std. value of 1.884, when advising friends, family and colleagues on grocery purchases. The Z value of -10.367 and a highly significant P value of $<.001^*$ indicate a strong endorsement of this behaviour.
- Posting reviews of groceries on social media exhibits a moderate trend with a mean value of 4.01, a Std. value of 2.205 and a non-significant P value of .949, suggesting that this behaviour may not be as prevalent or consistent among respondents.
- Respondents exhibit a moderately positive inclination, with a mean value of 3.07 and a Std. value of 2.100, towards taking photos of purchased groceries and sharing them online. The significant negative Z value of -8.374 and a P value of $<.001^*$ emphasise the prevalence of this behaviour.

Table 8. 7a Dissatisfaction - Smartphone

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	IQR	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Some what agree	Agree	Strongly agree						
4.7.1 Contact the retailer telephonically before returning the smartphone.	428	7.0	9.3	5.1	7.7	9.6	27.8	33.4	5.21	1.956	6	4;7	-10.513	<.001*
4.7.2 Communicate with the retailer via email before returning the smartphone.	428	5.4	9.8	3.7	12.4	13.3	26.6	28.7	5.13	1.850	6	4;7	-10.338	<.001*
4.7.3 Visit the physical store to return the smartphone purchased in-store.	428	0.7	2.6	1.2	7.2	5.1	27.6	55.6	6.19	1.248	7	6;7	-16.986	<.001*
4.7.4 Return the smartphone to a physical store even though I purchased it online.	428	7.0	15.7	6.3	15.2	8.9	21.0	25.9	4.70	2.025	5	3;7	-6.977	<.001*
4.7.5 Contact the retailer to pick up the smartphone from home/office for return if I purchase the smartphone online.	4280	11.2	12.9	7.0	13.6	9.6	19.6	26.2	4.61	2.114	5	3;7	-5.706	<.001*

Table 8.7a presents post-purchase behaviour dissatisfaction when purchasing smartphones. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Respondents have a strong tendency to visit the store for returns for smartphones purchased physically in-store. The high mean value of 6.19, a Std. value of 1.248, a Z value of -16.986 and a highly significant P value $<.001^*$ emphasise this preference.
- Communication through email with the retailer before returning the smartphone is prevalent, with a high mean value of 5.13, a Std. value of 1.956a, a Z value of -10.338 and a highly significant P value of $<.001^*$.
- Email communication is a common channel for return enquiries, with a mean value of 4.50 and a Std. value of 1.850. The significant negative Z value of -4.191 and P value of $<.001^*$ underscore the substantial usage of email in return interactions.
- Many respondents return smartphones to a physical store, even for online smartphones. The mean value of 4.70, a Std. value of 2.025, a Z value of -6.977 and a highly significant P value $<.001^*$ reflect this notable behaviour.
- Respondents often prefer to contact the retailer for pickup rather than visiting a physical store when purchasing smartphones online. The mean value of 4.61, a Std. value of 2.114, a Z value of -5.706 and a highly significant P value of $<.001^*$ underscore this trend.

Table 8. 7b Dissatisfaction - Groceries food items

Questionnaire Items	N	Percentage							Mean	Standard Deviation	Median	Inter Quartile Range	Z Value	P Value
		Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagreed	Somewhat agree	Agree	Strongly agree						
5.7.1 Contact the retailer telephonically before returning the groceries.	428	13.8	14.5	5.6	9.8	8.6	22.7	25.0	4.53	2.202	5	2;6.75	-4.627	<.001*
5.7.2 Email the retailer before returning the groceries (food items).	428	13.6	15.2	4.4	9.8	10.7	24.1	22.2	4.50	2.168	5	2;6	-4.191	<.001*
5.7.3 Visit the physical store to return the groceries purchased in-store.	428	1.2	2.1	2.1	4.4	6.3	27.1	56.8	6.21	1.259	7	6;7	-17.030	<.001*
5.7.4 Go to the physical store to return the groceries purchased online.	428	6.3	12.6	6.3	14.5	9.3	18.5	32.5	4.93	2.008	6	3;7	-8.940	<.001*
5.7.5 Contact the retailer to pick up the groceries from home/office for return if I purchase the groceries online.	428	13.6	16.1	6.5	13.6	6.8	21.0	22.4	4.37	2.176	5	2;6	-3.482	<.001*

Table 8.7b presents the post-purchase dissatisfaction when purchasing groceries—food items. The mean values ranged from a maximum of seven to a minimum of one. The mean values in descending order are:

- Physical store visits for in-store returns for groceries (food items) exhibit a high mean value of 6.21 and a Std. value of 1.259, indicating a strong preference for this method. The significant negative Z value of -17.030 and a P value of <.001* emphasise the overwhelming choice of returning groceries in-store.
- Respondents show a notable inclination, with a mean of 4.93 and a Std. value of 2.008, to return items in the physical store for groceries purchased online. The significant negative Z value of -8.940 and P value <.001* suggest a considerable reliance on in-store returns for online purchases.
- For groceries, respondents moderately utilise telephonic communication with a mean value of 4.53 and a Std. value of 2.202 when initiating the return process. The significant negative Z value of -4.627 and P value <.001* highlight the prevalence of this method.
- Respondents are inclined to contact the retailer via email before returning groceries, as indicated by the mean value of 4.50, a Std. value of 2.168, a Z value of -4.191 and a highly significant P value of <.001*.
- Contacting the retailer for home/office pickup of online purchased groceries is moderately preferred, with a mean value of 4.37 and a Std. value of 2.176. The significant negative Z value of -3.482 and a P value of <.001* indicate a notable usage of this convenience.

8.3 THEORETICAL FINDINGS AND HYPOTHESIS TESTING

This section presents the analysis and the results of the study based on the theoretical findings and hypothesis testing. SEM was used to test the proposed models. The testing of the proposed measurement models was carried out in two stages. The first stage includes testing the measurement model and confirming its validity and reliability. The second stage included testing the structural path model. The model fit indices are used to test the model's suitability at both stages (measurement and structural).

Table 8. 8a KMO and Barlett's Test - Smartphone

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.886
Bartlett's Test of Sphericity	Approx. Chi-Square	6432.775
	Df	703
	Sig.	<.001

Table 8. 8b KMO and Bartlett's Test - Groceries food items

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.879
Bartlett's Test of Sphericity	Approx. Chi-Square	5546.596
	Df	435
	Sig.	<.001

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy value must be greater than 0.500 and Bartlett's Test of Sphericity (BTS) significance level must be less than 0.05. These criteria indicate that the variables used in the study instruments are good indicators of the underlying factors. It can be deduced that the components of the study instrument measured precisely what they were intended to measure (Analysis in 2020).

As shown in Table 8.8a and Table 8.8b, the KMO for this set of variables was greater than the threshold of 0.5 and the p-value for the BTS was a highly significant p-value of <.001. Thereby stating that these sections in the study instrument measured what it was supposed to measure. In addition, the KMO and BTS allow the researcher to continue with the Principal Component Analysis (PCA), which is discussed in Tables 8.9a and 8.9b in the preceding paragraph.

Table 8. 9a Total Variance Explained - Smartphone

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.110	23.975	23.975	9.110	23.975	23.975	3.747	9.859	9.859
2	3.413	8.983	32.957	3.413	8.983	32.957	3.262	8.584	18.443
3	20237	5.886	38.844	2.237	5.886	38.844	3.079	8.102	26.545
4	1.963	5.165	44.009	1.963	5.165	44.009	2.854	7.511	34.055
5	1.606	4.227	48.236	1.606	4.227	48.236	2.849	7.499	41.554
6	1.331	3.503	51.739	1.331	3.503	51.739	2.677	7.045	48.599
7	1.257	3.307	55.046	1.257	3.307	55.046	1.943	5.113	53.712
8	1.139	2.997	58.043	1.139	2.997	58.043	1.646	4.331	58.043
9	0.952	2.506	60.549						
10	0.941	2.477	63.026						
11	0.888	2.338	65.364						
12	0.865	2.276	67.640						
13	0.805	2.117	69.757						
14	0.746	1.963	71.720						
15	0.720	1.896	73.616						
16	0.678	1.784	75.400						
17	0.662	1.741	77.141						
18	0.621	1.634	78.775						
19	0.609	1.603	80.378						
20	0.551	1.449	81.827						
21	0.533	1.403	83.230						
22	0.519	1.366	84.596						
23	0.496	1.305	85.901						
24	0.493	1.298	87.199						
25	0.467	1.228	88.427						
26	0.454	1.196	89.623						
27	0.444	1.169	90.792						
28	0.424	1.116	91.908						
29	0.410	1.080	92.988						
30	0.383	1.007	93.995						
31	0.375	0.986	94.981						
32	0.335	0.882	95.863						

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
33	0.311	0.819	96.682						
34	0.295	0.776	97.458						
35	0.282	0.742	98.201						
36	0.269	0.708	98.909						
37	0.256	0.675	99.583						
38	0.158	0.417	100.000						
Extraction Method: Principal Component Analysis.									

Table 8. 9b Total Variance Explained - Groceries food items.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.992	26.639	26.639	7.992	26.639	26.639	4.703	15.676	15.676
2	3.386	11.287	37.926	3.386	11.287	37.926	3.182	10.607	26.283
3	1.969	6.563	44.489	1.969	6.563	44.489	3.161	10.538	36.821
4	1.844	6.146	50.635	1.844	6.146	50.635	2.750	9.165	45.986
5	1.341	4.470	55.106	1.341	4.470	55.106	2.199	7.329	53.315
6	1.168	3.893	58.999	1.168	3.893	58.999	1.705	5.684	58.999
7	0.959	3.196	62.195						
8	0.944	3.147	65.342						
9	0.809	2.696	68.038						
10	0.760	2.533	70.571						
11	0.729	2.431	73.002						
12	0.693	2.310	75.311						
13	0.653	2.176	77.487						
14	0.611	2.036	79.524						
15	0.595	1.984	81.508						
16	0.557	1.857	83.365						
17	0.511	1.703	85.068						
18	0.491	1.636	86.704						
19	0.464	1.547	88.252						

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
20	0.422	1.405	89.657						
21	0.403	1.344	91.001						
22	0.391	1.302	92.303						
23	0.375	1.250	93.553						
24	0.359	1.197	94.750						
25	0.320	1.068	95.817						
26	0.309	1.028	96.846						
27	0.279	0.929	97.774						
28	0.273	0.910	98.684						
29	0.248	0.826	99.510						
30	0.147	0.490	100.000						
Extraction Method: Principal Component Analysis.									

Applying the correct criterion for determining the number of factors to extract is crucial because too few factors may overlook essential common variance. At the same time, too many factors can introduce excessive error variance. One widely used method is the Kaiser criterion. According to Kaiser (1960), factors with eigenvalues greater than one should be retained. This criterion is considered reliable when the average extracted communalities exceed 0.7 with fewer than 30 variables or when the average extracted communalities are 0.6 or higher with a sample size greater than 250 (Field 2009). In this study, the researcher applied the Kaiser criterion and the results are presented in Tables 8.9a and 8.9b.

In Table 8.9a, the solution has eight factors with eigenvalues greater than 1. These eight factors account for 58,043% of the variability in the original variables. Table 8.9a displays eight principal components, labelled from 1 to 8.

- Component 1: Purchase
- Component 2: Pre-purchase - search
- Component 3: Artificial Intelligence in-store and online
- Component 4: Purchase – payment methods
- Component 5: Pre-purchase – evaluation

- Component 6: Post-purchase - satisfaction
- Component 7: Pre-purchase – search in-store
- Component 8: Post-purchase – dissatisfaction

In Table 8.9b, the solution has six factors with eigenvalues greater than 1. These six factors account for 58,999% of the variability in the original variables. Table 8.9b displays six principal components, labelled from 1 to 6.

- Component 1: Pre-purchase – evaluation
- Component 2: Purchase – collection and delivery
- Component 3: Pre-purchase – social media
- Component 4: Artificial intelligence in-store and online
- Component 5: Post-purchase – satisfaction
- Component 6: Post-purchase – dissatisfaction

Table 8. 10a Rotated Component Matrix - Smartphone

Rotated Component Matrix ^a								
	Component							
	1	2	3	4	5	6	7	8
3.1.1 I prefer self-service checkouts in-store			0.576					
3.1.2 I believe smart shelf tags would provide me with in-store assistance			0.749					
3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store			0.693					
3.1.4 Targeted deals sent to my smartphone while shopping encourages me to make purchases while shopping in-store			0.693					
3.2.1 I prefer chatbots to provide me with online customer service								
3.2.4 Personalised product recommendations on websites influence my purchase decision			0.648					
4.1.2 I look in-store for smartphones and shop in-store							0.689	
4.1.3 I scroll through smartphones online and shop in-store							0.813	
4.2.1 I prefer webrooming (searching for information online and then purchasing the smartphone in-store)							0.732	
4.3.1 Price and Discounts					0.680			

Rotated Component Matrix ^a								
	Component							
	1	2	3	4	5	6	7	8
4.3.2 Quality of the smartphone					0.810			
4.3.3 Brand of smartphone					0.638			
4.3.4 User-friendly					0.574			
4.3.5 Payment Options (Card and Mobile)				0.711				
4.3.6 Previous shopping experience								
4.3.7 Trustworthiness of Vendor					0.549			
4.3.8 Word-of-mouth (Recommendations from friends and family, customer reviews)								
4.3.9 Information Security				0.602				
4.3.10 Payment vendors (PayPal, Apple Pay, etc.)				0.725				
4.3.11 Delivery/Collection Options				0.648				
4.4.1 I choose to purchase smartphones online and collect them in-store	0.610							
4.4.4 I prefer to purchase smartphones in-store and receive delivery of the smartphone	0.714							
4.4.5 I choose to make online purchases and collect curbside	0.758							
4.5.2 using my mobile phone while in-store	0.637							
4.5.3 cash on delivery (COD) when I purchase online	0.605							
4.5.4 via apps to pay for my online purchases (PayPal, Samsung Pay, etc.)	0.575							
4.6.1 After I purchase a smartphone, I take a photo and post it online						0.602		
4.6.2 I advise friends, family and colleagues to purchase the same smartphone I bought						0.757		
4.6.3 I recommend friends, family and colleagues to my preferred retailer						0.698		
4.6.4 I post reviews of the smartphone I purchased on social media networking sites						0.550		
4.6.5 I make a repeat purchase of the smartphone								
4.7.1 I contact the retailer telephonically before returning the smartphone								0.758
4.7.2 I communicate with the retailer via email before returning the smartphone								0.813
6.1.1 I post my shopping experiences on social media								

Rotated Component Matrix ^a								
	Component							
	1	2	3	4	5	6	7	8
6.1.2 I search for product vendors on social media before purchase		0.751						
6.1.3 I read reviews on social media before purchase		0.759						
6.1.4 I make price comparisons on social media before purchase		0.813						
6.1.5 I compare brands on social media before purchasing		0.820						
Extraction Method: Principal Component Analysis.								
Rotation Method: Varimax with Kaiser Normalization.								
a. Rotation converged in 8 iterations.								

Table 8. 10b Rotated Component Matrix - Groceries food items.

Rotated Component Matrix ^a						
	Component					
	1	2	3	4	5	6
3.1.1 I prefer self-service checkouts in-store				0.599		
3.1.2 I believe smart shelf tags would provide me with in-store assistance				0.766		
3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store				0.726		
3.1.4 Targeted deals sent to my smartphone while shopping encourages me to make purchases while shopping in-store				0.719		
3.2.4 Personalised product recommendations on websites influence my purchase decision				0.619		
6.1.1 I post my shopping experiences on social media						
6.1.2 I search for product vendors on social media before purchase			0.710			
6.1.3 I read reviews on social media before purchase			0.730			
6.1.4 I make price comparisons on social media before purchase			0.839			
6.1.5 I compare brands on social media before purchasing			0.824			
5.3.1 Price and discounts	0.597					

Rotated Component Matrix ^a						
	Component					
	1	2	3	4	5	6
5.3.2 Quality of the groceries (food items)	0.767					
5.3.3 Brand of groceries (food items)	0.599					
5.3.4 User-friendly	0.753					
5.3.5 Payment options (Card and Mobile)	0.575					
5.3.6 Previous shopping experience	0.669					
5.3.7 Trustworthiness of Vendor	0.800					
5.3.8 Word-of-mouth (Recommendations from friends and family, customer reviews)	0.534					
5.3.9 Information Security	0.724					
5.3.11 Delivery/Collection Options	0.570					
5.4.1 I choose to purchase groceries (food items) online and collect them in-store		0.723				
5.4.4 I prefer to purchase groceries (food items) in-store and receive delivery of the groceries		0.784				
5.4.5 I chose to purchase groceries (food items) online and collect curbside		0.743				
5.5.2 using my mobile phone while in-store		0.543				
5.5.4 via apps to pay for my online purchases (PayPal, Samsung Pay, etc.)		0.504				
5.6.2 I advise friends, family and colleagues to purchase the groceries (food items) I bought					0.793	
5.6.3 I recommend that friends, family and colleagues purchase groceries (food items) from my preferred retailer					0.794	
5.6.5 I make repeat purchases of the groceries					0.608	
5.7.1 I contact the retailer telephonically before returning the groceries						0.860
5.7.2 I communicate with the retailer via email before returning the groceries (food items)						0.852
Extraction Method: Principal Component Analysis.						
Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 6 iterations.						

Peterson (2000) reported that it is reasonable and applicable to consider a solution that explains at least 50% of the overall variance. The rotated factor loadings are presented in Tables 8.10a and 8.10b. Tables 8.10a and 8.10b show the relationship between the actual variables and the components. Factor loadings greater than 0.5 were deemed correlated to the relevant components and variables presented PCs with a high correlation.

Table 8.10a component one loads high on variables Q4.4.1, Q4.4.4, Q4.4.5 and Q4.5.2, Q4.5.3 and Q4.5.4 with scoring coefficients of 0.610, 0.714, 0.758, 0.637, 0.605 and 0.575, respectively. Component one can be classified as a factor capturing variables related to purchase (collection delivery) and (payment methods). Component two loads highly on variables such as Q6.1.2, Q6.1.3, Q6.1.4 and Q6.1.5, scoring coefficients of 0.751, 0.759, 0.813 and 0.820. Component two is defined as indicators that capture social media use and engagement. Component three loaded high on variables Q3.1.1, Q3.1.2, Q3.1.3, Q3.1.4 and Q3.2.4, scoring coefficients of 0.576, 0.749, 0.693, 0.693 and 0.648, respectively. Component three is classified as factors capturing variables related to artificial intelligence in-store and online. Component four loaded high on variables Q4.3.5, Q4.3.9, Q4.3.10 and Q4.3.11, scoring coefficients of 0.711, 0.602, 0.725 and 0.648. Component four captures variables related to the pre-purchase evaluation of information. Component five loaded highly on variables Q4.3.1, Q4.3.2, Q4.3.3, Q4.3.4 and Q4.3.7, scoring coefficients of 0.680, 0.810, 0.638, 0.574 and 0.549. Component five captures variables related to the pre-purchase evaluation of information. Component six loaded high on variables Q4.6.1, Q4.6.2, Q4.6.3 and Q4.6.4, scoring coefficients of 0.602, 0.757, 0.698 and 0.550, respectively. Component six captures variables related to post-purchase behaviour – satisfaction. Component seven loaded high on variables Q4.1.2, Q4.1.3 and Q4.2.1 with scoring coefficients of 0.689, 0.813 and 0.732. Component seven captures variables related to the pre-purchase search for information. Component eight loaded high on variables Q4.7.1 and Q4.7.2, scoring coefficients of 0.758 and 0.813. Component eight captures variables related to post-purchase behaviour – dissatisfaction. The first principal component or only a few PCs usually contain maximum information (Zheng, Podobnik, Feng and Li 2012: 3; Billio Getmansky and Pelizzon 2012: 536). Therefore, in this study, the first PC is significant (containing 23,975% variation) among the eight constructed PCs.

In Table 8.10b, component one loads high on variables Q5.3.1, Q5.3.2, Q5.3.3, Q5.3.4, Q5.3.5, Q5.3.6, Q5.3.7, Q5.3.8, Q5.3.9 and Q5.3.11 with scoring coefficients of 0.597, 0.767, 0.599, 0.753, 0.575, 0.669, 0.806, 0.534, 0.724 and 0.570, respectively. Component one can be classified as a factor capturing variables related to pre-purchase (evaluation). Component TWO

loads highly on variables such as Q5.4.1, Q5.4.4, Q5.4.5, Q5.5.2 and Q5.5.4, scoring coefficients of 0.723, 0.784, 0.743, 0.543 and 0.504. Component two is defined as indicators that capture pre-purchase (search). Component three loaded high on variables Q6.1.2, Q6.1.3, Q6.1.4 and Q6.1.5 with scoring coefficients of 0.710, 0.730, 0.839 and 0.824, respectively. Component three is classified as factors capturing variables related to social media. Component four loaded high on variables Q3.1.1, Q3.1.2, Q3.1.3, Q3.1.4 and Q3.2.4, scoring coefficients of 0.599, 0.766, 0.726, 0.719 and 0.619. Component four captures variables related to artificial intelligence. Component five loaded highly on variables Q5.6.2, Q5.6.3 and Q5.6.5, scoring coefficients of 0.793, 0.794 and 0.608. Component five captures variables related to the post-purchase behaviour (satisfaction). Component six loaded high on variables Q5.7.1 and Q5.7.2 with scoring coefficients of 0.860 and 0.852, respectively. Component six captures variables related to post-purchase behaviour (dissatisfaction). In this study, the first PC is significant (containing 26,639% variation) among the six constructed PCs.

8.4 RELIABILITY

Coefficient alphas were computed to assess the reliability of the measurement scales through their internal consistency. In this study, coefficient alphas were calculated to evaluate the reliability of these scales based on their internal consistency.

8.4.1 Cronbach Alpha

Table 8. 11a Cronbach Alpha - Smartphone

Construct	Label	Items included	Number of items	Cronbach's alpha
Factor 1	Purchase (PUR)	4.4.1,4.4.4,4.4.5,4.5.2,4.5.3,4.5.4	6	0.803
Factor 2	Social media (SOC)	6.1.2,6.1.3,6.1.4,6.1.5	4	0.868
Factor 3	Artificial intelligence (TEC)	3.1.1,3.1.2, 3.1.3, 3.1.4,3.2.4	5	0.778
Factor 4	Pre-purchase (PRE)	4.3.5,4.3.9,4.3.10,4.3.11	4	0.749
Factor 5	Pre-purchase evaluation (PR)	4.3.1,4.3.2,4.3.3,4.3.4,4.3.7	5	0.763
Factor 6	Post-purchase Satisfaction (POST)	4.6.1-4.6.4	4	0.786
Factor 7	Pre-purchase awareness) PRE-AWARE	4.1.2,4.1.3	3	0.679
Factor 8	Post-purchase Dissatisfaction (DSAT)	4.7.1-4.7.2	2	0.640

Table 8. 11b Cronbach Alpha - Groceries food items

Construct	Label	Items included	Number of items	Cronbach's alpha
Factor1	Pre-purchase	5.3.1-5.3.9 and 5.3.11	10	0.862
Factor 2	Purchase	5.4.1, 5.4.4,5.4.5,5.5.2,5.5.4	5	0.779
Factor3	Post-purchase Satisfaction	5.6.2,5.6.3,5.6.5	3	0.738
Factor 4	Post-purchase Dissatisfaction	5.7.1,5.7.2	2	0.803

This study used coefficient alphas for this evaluation, and Tables 8.11a and 8.11b present the reliability scores.

In Table 8.11a, factors one and two indicate higher reliability and factors three to eight indicate moderate reliability. Hence, every section surpasses the endorsed Cronbach's alpha value, indicating adequate, reliable recording for these study parts. Table 8.11b presents the reliability scores for the section on groceries. Factors one and four indicate higher reliability, and factors two to three indicate moderate reliability. Hence, every section surpasses the endorsed Cronbach's alpha value, indicating adequate, reliable recording for these study parts.

8.4.2 Fitness of the Model

Table 8. 12a Model fitness indices for the MM - Smartphone

Fit Indices	Fit values	Criteria
χ^2 / df (p-value)	197.741	<5
Goodness of fit (GFI)	0.931	>.9
Incremental Fit Index (IFI)	0.975	>.9
Comparative fit index (CFI)	0.975	>.9
Tucker Lewis index (TLI)	0.969	>.9
Root mean square error of approximation (RMSEA)	0.037	<.08

Table 8. 12b Model fitness indices for the MM - Groceries food items

Fit Indices	Fit values	Criteria
χ^2 / df (p-value)	338.706	<5
IFI	0.942	>.9
CFI	0.942	>.9
TLI	0.927	>.9
RMSEA	0.059	<.08

This study utilised the following indices and their respective thresholds for model evaluation:

- Chi-square value (<3)
- Comparative Fit Index (CFI): (> 0.900)
- Goodness of Fit Index (GFI): (> 0.900)
- Incremental Fit Index (IFI): (> 0.900)
- Normed Fit Index (NFI): (> 0.900)
- Tucker Lewis Index (TLI): (> 0.900)
- Root Mean Square Error of Approximation (RMSEA): (< 0.08)

The model's overall fit was assessed by multiple fit criteria in Tables 8.12a and 8.12b. The normed chi-square is an absolute fit index obtained by dividing χ^2 by df.

The goodness of fitness indices is as follows: Table 8.12a is in line with Hu and Bentler (1999), all criteria met the recommended values of the measurement model. Multiple fit criteria are assessed in Table 8.12b, which is the model's overall fit. All criteria met the recommended values of the measurement model.

8.5 VALIDITY

This study tested validity separately from reliability. Reliability pertains to the consistency of a measure, whereas validity concerns its accuracy. This study focused specifically on evaluating discriminant and convergent validity. This study assessed discriminant validity using descriptive statistics by examining the correlation coefficients and applying the comparison method.

Table 8. 13a Composite reliability, average variance extracted and maximum shared square values - Smartphone.

	Composite Reliability (CR.)	Average Variance Extracted (AVE)	MSV	MaxR(H)	POST	TEC	SOC	PRE	PUR
POST	0.755	0.509	0.436	0.767	0.713				
TEC	0.784	0.548	0.324	0.786	0.569	0.740			
SOC	0.861	0.615	0.349	0.914	0.591	0.461	0.784		
PRE	0.723	0.466	0.232	0.727	0.431	0.346	0.419	0.683	
PUR	0.798	0.443	0.436	0.808	0.660	0.507	0.379	0.482	0.665

Note: the values in bold along the diagonal are the square root of AVE for each factor

Table 8. 13b Composite reliability, average variance extracted and maximum shared square values - Groceries food items.

	CR	AVE	MSV	MaxR(H)	PUR	Tec	SOC	PRE	DIST	SA
PUR	0.795	0.563	0.222	0.796	0.751					
Tec	0.784	0.548	0.228	0.787	0.449	0.741				
SOC	0.855	0.551	0.229	0.911	0.471	0.477	0.742			
PRE	0.804	0.507	0.176	0.808	0.214	0.347	0.419	0.712		
DIST	0.804	0.673	0.211	0.808	0.459	0.167	0.293	0.207	0.820	
SA	0.828	0.707	0.229	0.834	0.367	0.416	0.479	0.283	0.247	0.841

Note: the values in bold along the diagonal are the square root of AVE for each factor

The initial phase of SEM involved calculating model fit, reliability (CR values) and validity (AVE values). In confirmatory factor analysis, CR and AVE values were determined using standardised regression weights or estimated using the formula proposed by Fornell and Larcker (1981). To ensure convergence, all estimates for CR and AVE should be 0.5 or higher, as recommended by Fornell and Larcker (1981).

Table 8.13a, the measurement model for the smartphone (high-involvement) product demonstrated satisfactory internal consistency across all constructs, with Composite Reliability (CR) values exceeding the recommended threshold of 0.70 (Hair et al., 2019). While several constructs—namely POST, TEC, PRE, PR and PUR—reported Average Variance Extracted (AVE) values slightly below the 0.50 benchmark (Fornell and Larcker, 1981), this does not invalidate the model. According to Hair et al. (2019), when CR exceeds 0.70, lower AVE values can be tolerated, particularly in complex or exploratory models where theoretical justification and item reliability are well-established. Furthermore, the Fornell-Larcker criterion for discriminant

validity was largely satisfied, as the square root of each construct's AVE was greater than its correlations with other constructs. Although the Maximum Shared Variance (MSV) marginally exceeded AVE for a few constructs (e.g., PR, PRE), the model's overall structure is supported by a strong theoretical foundation and acceptable global fit indices (CFI = 0.913; RMSEA = 0.054), confirming the adequacy of construct validity in this context. Given the evolving nature of omnichannel consumer behaviour and the integration of 4IR technologies in emerging markets, the measurement properties of this study are deemed acceptable and consistent with best practices in structural equation modelling (Byrne, 2016; Kline 2016).

Table 8.13b, the measurement model for groceries (low-involvement products) was assessed for reliability and validity using Composite Reliability (CR), Average Variance Extracted (AVE) and Maximum Shared Variance (MSV). All constructs demonstrated strong internal consistency, with CR values well above the recommended 0.70 threshold (Hair et al., 2019), confirming that the items used to measure latent variables were consistently reliable. While the construct Pre-purchase (PRE) reported an AVE value of 0.402, slightly below the recommended minimum of 0.50 (Fornell and Larcker, 1981), this is considered acceptable in the presence of high CR values (CR = 0.869), as AVE is a more conservative measure of convergent validity. Scholars such as Malhotra and Dash (2016) and Hair et al. (2019) argue that if CR exceeds 0.70, a lower AVE (e.g., > 0.40) can still be tolerated, especially in models exploring complex or context-specific behaviours. Discriminant validity was also assessed through the Fornell-Larcker criterion, where the square root of the AVE (bold diagonal values) exceeded the inter-construct correlations in all cases, confirming that each construct measured a distinct concept. Additionally, MSV values were all below corresponding AVEs, which further supports discriminant validity (Byrne, 2016). Given the robust model fit indices and theoretical coherence, the measurement model for groceries is both statistically and conceptually sound, validating the constructs used to explain omnichannel consumer behaviour in a low-involvement retail context.

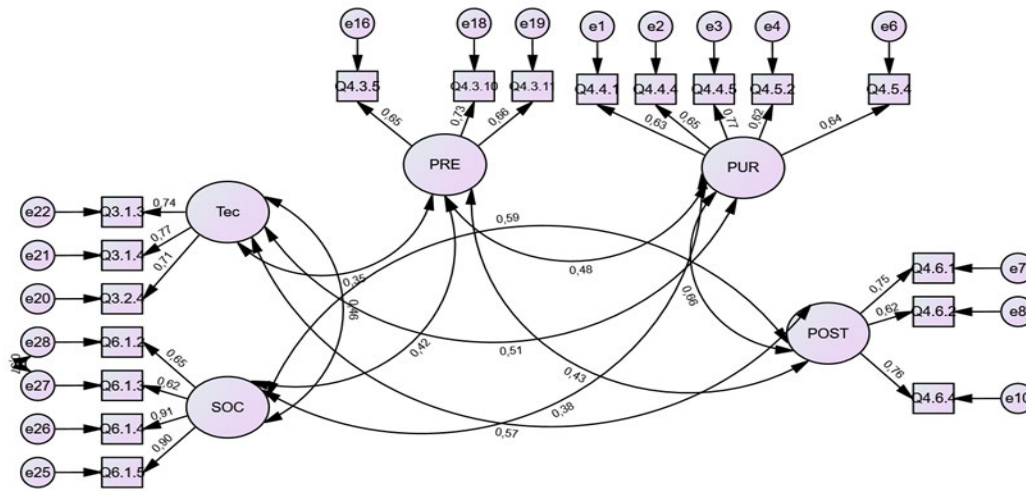
8.6 STRUCTURAL EQUATION MODEL (HYPOTHESES TESTING)

Data analysis employs statistical inference to derive properties of the underlying probability distributions (Dangi, Kaur and Jham 2019: 18). In this study, statistical inference was demonstrated through hypothesis testing and estimation. The structural model was assessed using SEM. This research adopted the two-step approach recommended by Anderson and Gerbing (1988: 411), beginning with a CFA to calculate CR, AVE and model fit indices. The final

phase involved Path Modelling, which included re-evaluating model fit and testing the hypothesised relationships.

SEM, also known as covariance structure modelling, is a robust and adaptable multivariate statistical method that integrates factor analysis with regression or path models involving latent variables (Anderson and Gerbing 1988: 411; Dangi *et al.* 2019: 18; Hox and Bechger 1998: 355). SEM outlines the covariances among observed variables (Ullman and Bentler 2003; Hancock, Stapleton and Mueller 2018: 371) and can be expanded to incorporate additional observed variables or factors, making the term "covariance structure modelling" somewhat limiting. Typically, a graphical path diagram represents structural equation models. SEM facilitates the simultaneous specification of confirmatory factor analysis, regression and complex path models. Latent factors symbolise theoretical constructs, while regressions or path coefficients indicate the relationships between these constructs (Marcoulides and Schumacker 1996: 58). Modern SEM approaches are not restricted to linear models and have advanced significantly beyond the initial Lisrel programme proposed by Jöreskog (1969: 184), with Browne (1993: 172) discussing the potential for fitting nonlinear curves.

Consequently, Amos 28 software was used to calculate essential values, such as standardised regression weights and estimates. The software generated standardised estimates that were used for interpretation. A key strength of SEM is its ability to identify the correlations between factors.



Note: Cmindf=1.595, df=124, $X^2=197.741$, GFI=0.931, CFI=0.975, TLI=0.969, IFI=0.975, RMSEA=0.037

Figure 8. 1a CFA - Smartphone

Q 3.1.2 I believe smart shelf tags would provide me with in-store assistance
 Q 3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store
 Q 3.1.4 Targeted deals sent to my smartphone while shopping encourages me to make purchases while shopping in-store
 Q 3.2.4 Personalised product recommendations on websites influence my purchase decision.
 Q 4.3.1 Price and discounts

Q 4.3.2 Quality of the Smartphone

Q 4.3.3 Brand of smartphone

Q 4.3.4 User-friendly

Q 4.3.5 Payment Options (Card and Mobile)

Q 4.3.7 Trustworthiness of Vendor

Q 4.3.9 Information Security

Q 4.3.10 Payment vendors (PayPal, Apple Pay, etc.)

Q 4.3.11 Delivery/Collection Options

Key

TEC – Technology: artificial intelligence in-store and online

SOC – social media

PR – Pre-purchase: evaluation

PRE – Pre-purchase: evaluation

PUR – Purchase: collection and delivery

POST - post-purchase: satisfaction

Q 4.4.1I choose to purchase smartphones online and collect them in-store
 Q 4.4.4 I prefer to purchase smartphones in-store and receive delivery of the smartphone

Q 4.4.5 I choose to make online purchases and collect curb side

Q 4.5.2 I choose to pay for the smartphone using my mobile phone while in-store

Q 4.5.3 I choose to pay cash on delivery (COD) for the smartphone when I purchase it online

Q 4.5.4 I pay for the smartphone via payment apps (PayPal, Samsung Pay, etc.)

Q 4.6.1 After I purchase a smartphone, I take a photo and post it online.

Q 4.6.2 I advise friends, family and colleagues to purchase the same smartphone I bought

Q 4.6.3 I recommend friends, family and colleagues to my preferred retailer

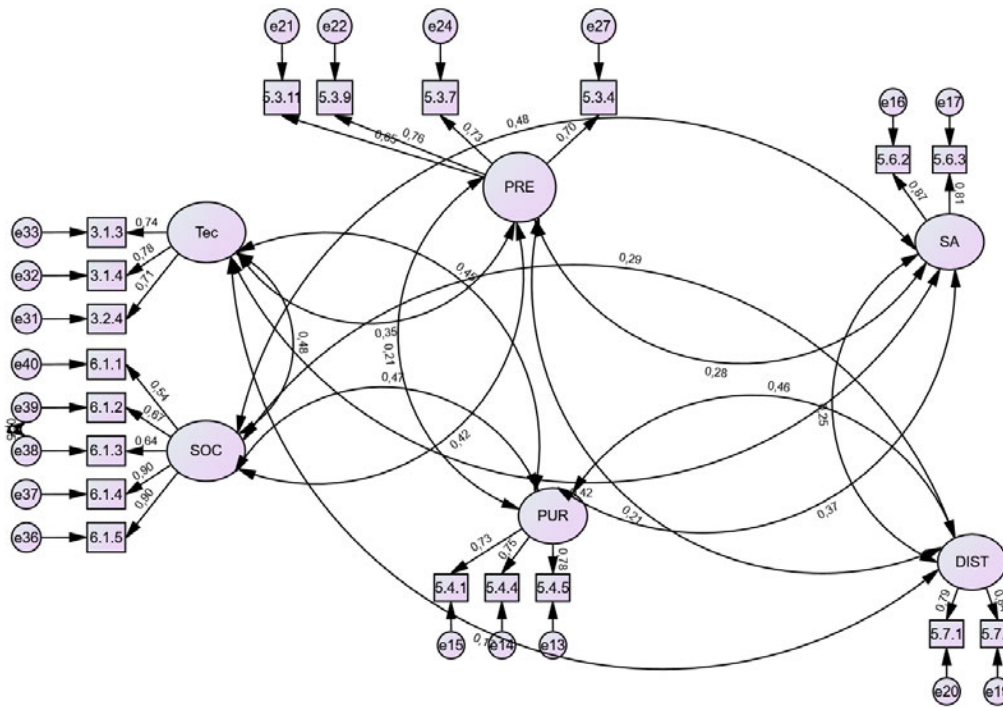
Q 4.6.4 I post reviews of the smartphone I purchased on social media networking sites

Q 6.1.2 I search for product vendors on social media before purchase

Q 6.1.3 I read reviews on social media before purchase

Q 6.1.4 I make price comparisons on social media before purchase

Q 6.1.5 I compare brands on social media before purchasing



Note: cmindf=2.490, Df=136, X2=338.706, GFI=0.920, CFI=0.942, TLI=0.927, IFI=0.942, RMSEA=0.059

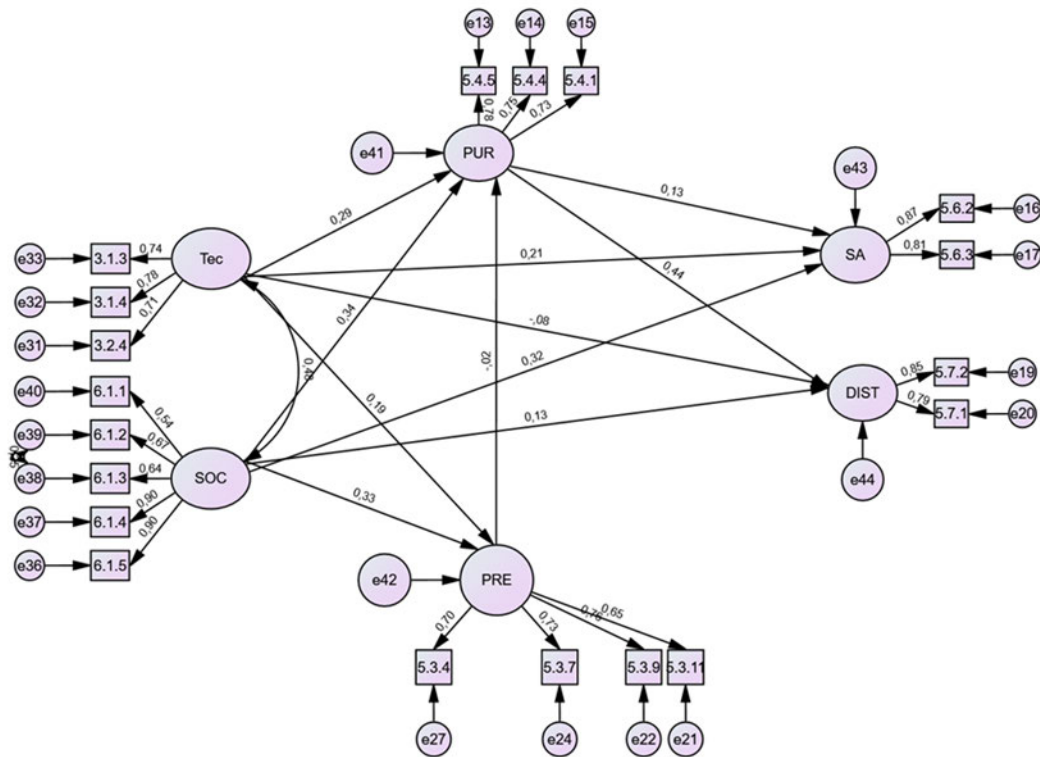
Figure 8. 1b CFA - Groceries food items

Q 3.1.2 I believe smart shelf tags would provide me with in-store assistance
 Q 3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store
 Q 3.1.4 Targeted deals sent to my smartphone while shopping encourage me to make purchases while shopping in-store
 Q 3.2.4 Personalised product recommendations on websites influence my purchase decision.
 Q 5.3.1 Personalised product recommendations on websites influence my purchase decision.
 Q 5.3.2 Quality of the groceries (food items)
 Q 5.3.3 Brand of groceries (food items)
 Q 5.3.4 User-friendly
 Q 5.3.5 Payment Options (Card and Mobile)
 Q 5.3.6 Previous shopping experience
 Q 5.3.7 Trustworthiness of Vendor
 Q 5.3.8 Word-of-mouth (Recommendations from friends and family, customer reviews)
 Q 5.3.9 Information Security
 Q 5.3.11 Delivery/Collection Options

Q 5.4.1 I choose to purchase groceries (food items) online and collect them in-store
 Q 5.4.2 I opt to purchase groceries (food items) online and receive them via delivery
 Q 5.4.4 I prefer to purchase groceries (food items) in-store and receive delivery of the groceries
 Q 5.5.5 I choose to pay using my credit/debit card when purchasing online
 Q 5.6.2 I advise friends, family and colleagues to purchase the groceries (food items) I bought
 Q 5.6.3 I recommend that friends, family and colleagues purchase groceries (food items) from my preferred retailer
 Q 5.6.5 I make repeat purchases of the groceries
 Q 5.7.1 I contact the retailer telephonically before returning the groceries
 Q 5.7.2 I communicate with the retailer via email before returning the groceries (food items)
 Q 6.1.1 I post my shopping experiences on social media
 Q 6.1.2 I search for product vendors on social media before purchase
 Q 6.1.3 I read reviews on social media before purchase
 Q 6.1.4 I make price comparisons on social media before purchase
 Q 6.1.5 I compare brands on social media before purchasing

Key

TEC – Technology: artificial intelligence in-store and online
 SOC – Social media
 PUR – Purchase: collection and delivery.
 DIST – post-purchase: dissatisfaction
 SA – post-purchase: satisfaction
 PRE – Pre-purchase: evaluation



Note: Cmindf=2.476, Df=139, X2=344.181, GFI=0.919, CFI=0.941, TLI=0.927, IFI=0.941, RMSEA=0.059

Figure 8. 2b Finalised SEM - Groceries food items

Q 5.4.1 I choose to purchase groceries (food items) online and collect them in-store

Q 3.1.2 I believe smart shelf tags would provide me with in-store assistance
 Q 3.1.3 Intelligent display advertisements influence my purchase decisions when shopping in-store
 Q 3.1.4 Targeted deals sent to my smartphone while shopping encourage me to make purchases while shopping in-store
 Q 3.2.4 Personalised product recommendations on websites influence my purchase decision.
 Q 5.3.1 Personalised product recommendations on websites influence my purchase decision.
 Q 5.3.2 Quality of the groceries (food items)
 Q 5.3.3 Brand of groceries (food items)
 Q 5.3.4 User-friendly
 Q 5.3.5 Payment Options (Card and Mobile)
 Q 5.3.6 Previous shopping experience
 Q 5.3.7 Trustworthiness of Vendor
 Q 5.3.8 Word-of-mouth (Recommendations from friends and family, customer reviews)
 Q 5.3.9 Information Security
 Q 5.3.11 Delivery/Collection Options

Q 5.4.2 I opt to purchase groceries (food items) online and receive them via delivery
 Q 5.4.4 I prefer to purchase groceries (food items) in-store and receive delivery of the groceries
 Q 5.5.5 I choose to pay using my credit/debit card when purchasing online
 Q 5.6.2 I advise friends, family and colleagues to purchase the groceries (food items) I bought
 Q 5.6.3 I recommend that friends, family and colleagues purchase groceries (food items) from my preferred retailer
 Q 5.6.5 I make repeat purchases of the groceries
 Q 5.7.1 I contact the retailer telephonically before returning the groceries
 Q 5.7.2 I communicate with the retailer via email before returning the groceries (food items)
 Q 6.1.1 I post my shopping experiences on social media
 Q 6.1.2 I search for product vendors on social media before purchase
 Q 6.1.3 I read reviews on social media before purchase
 Q 6.1.4 I make price comparisons on social media before purchase
 Q 6.1.5 I compare brands on social media before purchasing

Key

TEC – Technology: artificial intelligence in-store and online
 SOC – Social media
 PUR – Purchase: collection and delivery.
 DIST – post-purchase: dissatisfaction
 SA – post-purchase: satisfaction

In the second data analysis stage, the measurement model from Stage 1 was transformed into a path model that illustrates the relationships between latent variables (Figures 8.2a and 8.2b).

In the low involvement (groceries) model, post-purchase satisfaction and post-purchase dissatisfaction are treated as distinct outcome variables because grocery purchases are frequent, low-cost, and minimal risk, enabling consumers to form immediate evaluative judgments after each purchase. These affective responses are straightforward to measure and directly influence short-term behavioural outcomes such as brand loyalty, product switching, or trial of alternative options (Oliver, 2014: 392; Hawkins and Mothersbaugh, 2019: 254). The separation of satisfaction and dissatisfaction also acknowledges that consumers may respond differently to positive and negative purchase experiences in habitual buying contexts.

By contrast, the high involvement (smartphones) model employs post-purchase behaviour as the outcome variable because high-cost, infrequently purchased items involve more extended evaluation periods and more complex cognitive-emotional processing (Kotler and Keller, 2016: 199; Schiffman and Wisenblit, 2019: 109). In such contexts, both satisfaction and dissatisfaction can coexist (e.g., satisfaction with specific features but dissatisfaction with price or battery life), and their influence manifests in broader behavioural expressions such as repurchase intention, brand advocacy, complaint behaviour, or switching (Oliver, 2014: 404; Zeithaml, Bitner and Gremler, 2018: 99). Measuring these aggregated behavioural outcomes better captures the holistic impact of post-purchase evaluations in high involvement decision-making.

The SEM for high-involvement purchases (smartphones) confirms a multistage decision pathway influenced by both technology and social media. The model highlights that consumers' evaluation of product-specific factors (PR) is a strong precursor to behavioural readiness (PRE), which significantly drives purchasing behaviour (PUR). Post-purchase satisfaction (POST) is shaped primarily by the quality of the purchase experience. The validated model supports the integration of digital enablers into the consumer decision-making process, contributing original insights into omnichannel shopper behaviour in emerging markets during the Fourth Industrial Revolution.

The SEM confirms that for low-involvement purchases (groceries), social media exerts a stronger influence on pre-purchase decision-making than technology. Purchase behaviour has a

dual post-purchase outcome: it can enhance satisfaction or lead to dissatisfaction, depending on the consumer's shopping and fulfilment experience. The model captures the critical role of digital engagement in shaping shopper journeys in a 4IR-driven, emerging-market retail environment.

This path model was then utilised to assess the impact of the independent variables (IVs) on the dependent variables (DVs). SEM was applied to test all the hypothesised relationships among the latent variables. SEM was chosen because it allows for the simultaneous evaluation of multiple interrelated independent and dependent relationships and incorporates measurement estimates among the constructs (Hair *et al.*, 2019). The resulting SEM with estimated standardised relationships is given in Figures 8.2a and 8.2b. The goodness of fitness indices are as follows: $\chi^2=197.832$, $\text{Df}=125$, $\text{GFI}=0.951$, $\text{CFI}=0.975$, $\text{TLI}=0.970$, $\text{IFI}=0.976$, $\text{RMSEA}=0.037$, $\chi^2=344.181$, $\text{Df}=139$, $\text{GFI}=0.919$, $\text{CFI}=0.941$, $\text{TLI}=0.927$, $\text{IFI}=0.941$, $\text{RMSEA}=0.059$ which suggests that the measurement model is acceptable. It was thus concluded that the model was consistent with real data.

Table 8. 14a Path regression estimate of the proposed model - Smartphone.

Hypothesis	Dependent variable (DV)		Independent Variable (IV)	Standardised coefficient	SE.	Critical Ratio. (CR.)	P	Decision
H1	PRE	<---	SOC	0.329	0.032	4.790	<.001*	Supported
H2	PRE	<---	TEC	0.195	0.047	2.721	0.007	Supported
H3	PUR	<---	PRE	0.328	0.117	4.627	<.001*	Supported
H4	PUR	<---	TEC	0.359	0.077	5.112	<.001*	Supported
H5	PUR	<---	SOC	0.076	0.048	1.216	0.224	Rejected
H6	POST	<---	PUR	0.436	0.095	6.411	<.001*	Supported
H7	POST	<---	TEC	0.192	0.099	2.948	0.003	Supported
H8	POST	<---	SOC	0.337	0.059	6.073	<.001*	Supported

Key

TEC – Technology: artificial intelligence in-store and online

SOC – Social media

PR – Pre-purchase: evaluation

PRE – Pre-purchase: evaluation

PUR – Purchase: collection and delivery.

POST - post-purchase: satisfaction.

Table 8. 14b Path regression estimate of the proposed model - Groceries food items.

Hypothesis	Dependent variable (DV)		Independent Variable (IV)	Standardised coefficient	SE.	Critical Ratio. (CR.)	P	Decision
H1	PRE	<---	TEC	0.189	0.050	2.778	0.005	Supported
H2	PRE	<---	SOC	0.332	0.034	5.047	<.001*	Supported
H3	PUR	<---	SOC	0.340	0.062	5.085	<.001*	Supported
H4	PUR	<---	TEC	0.293	0.093	4.217	<.001*	Supported
H5	PUR	<---	PRE	0.021	0.113	-0.341	0.733	Rejected
H6	SA	<---	PUR	0.129	0.073	1.964	0.050	Supported
H7	DIST	<---	PUR	0.436	0.096	5.742	<.001*	Supported
H8	SA	<---	TEC	0.206	0.101	3.047	0.002	Supported
H9	SA	<---	SOC	0.323	0.067	5.056	<.001*	Supported
H10	DIST	<---	TEC	-0.084	0.120	-1.182	0.237	Rejected
H11	DIST	<---	SOC	0.132	0.079	1.969	0.049	Supported

Key

TEC – Technology: artificial intelligence in-store and online

SOC – Social media

PUR – Purchase: collection and delivery.

DIST – post-purchase: dissatisfaction

SA – post-purchase: satisfaction

PRE – Pre-purchase: evaluation

In path analysis, the theoretical model includes both observable (dependent or endogenous) variables and unobservable (independent or exogenous) variables (Martynova, West and Liu, 2018: 327). This method aims to comprehend the regressions that support the stated hypotheses, explaining the variation within the structural model (Khine *et al.* 2013: 30). The primary focus in path analysis is whether to accept, modify, or reject the model.

Table 8.14a presents the hypothesis testing results for the smartphone (high-involvement) model using Structural Equation Modelling (SEM). The hypothesis (H1), that Pre-purchase evaluation of information (PR) is influenced by Social media (SOC), is supported. The data suggest that there is a statistically significant relationship between PRE and SOC ($\beta = 0.329$; $p < .001$). This indicates that social media significantly impacts pre-purchase evaluation. Consumers likely rely on social media for product discovery, reviews, or peer opinions during their pre-purchase stage. Hypothesis (H2), which proposed that PRE is influenced by TEC, is supported, with a significant positive relationship ($\beta = 0.195$; $p < .007$). Technology, including AI-driven recommendations or

online browsing tools, also significantly influences how consumers evaluate products pre-purchase. Hypothesis (H3) is strongly supported ($\beta = 0.328$ $p < .001$), confirming that (PUR) influences the pre-purchase behaviour (PRE). Pre-purchase evaluation significantly influences the purchase stage. This implies a strong link between informed evaluations and decisions related to collection or delivery. Hypothesis (H4) is also supported, indicating that (PUR) is significantly influenced by (TEC) ($\beta = 0.359$; $p < .001$). This indicates that technology has a strong effect on purchasing behaviour, especially in collection and delivery, AI tools or automation likely enhance this process. Hypothesis (H5) is not supported ($\beta = 0.076$; $p = 0.224$), where (PUR) is not influenced by (SOC). Hence, the effect of social media on purchase (collection and delivery) is not significant. While social media helps in evaluation, it may not directly influence logistical aspects of the purchase. Hypothesis (H6) is supported ($\beta = 0.436$; $p < .001$), where (POST) is influenced by (PUR) as the actual purchase experience (especially collection and delivery) has a strong positive impact on post-purchase satisfaction. Efficient, timely, or user-friendly delivery likely enhances satisfaction. Hypothesis (H7) is strongly supported ($\beta = 0.192$; $p < .003$), technology continues to play a significant role in the post-purchase phase, possibly through tracking, customer support AI, or return systems. Lastly, hypothesis (H8) is supported ($\beta = 0.337$, $p < .001$); hence, social media significantly contributes to post-purchase satisfaction, possibly due to follow-up engagement, customer support via social platforms, or user-generated content after purchase.

Together, these results highlight the interplay between technology, social media and consumer cognition, offering strong empirical support for the structural model and its contribution to understanding omnichannel shopper behaviour in the South African 4IR retail environment.

Table 8.14b presents the hypothesis testing results for the low-involvement product model (groceries), confirming that all proposed paths are statistically significant. The hypothesis (H1), is supported ($\beta = 0.189$; $p < .005$), as technology significantly enhances pre-purchase evaluation by aiding consumers in comparing and selecting products. Hypothesis (H2) is supported ($\beta = 0.332$; $p < .001$). Hence, social media strongly supports the evaluation stage, suggesting that consumers rely heavily on social content, peer opinions, and influencer insights during decision-making. Hypothesis (H3) is supported ($\beta = 0.340$; $p < .001$). Unlike Table 8.14a, here social media significantly impacts purchase behaviour. This may reflect evolving consumer behaviour where social platforms are increasingly integrated with purchasing. Hypothesis (H4) is supported ($\beta = 0.293$; $p < .001$), as technology meaningfully enhances purchase processes, likely through AI recommendations, frictionless checkout, or smart logistics. Hypothesis (H5) is not supported ($\beta =$

0.021; $p = 0.733$), indicating that pre-purchase evaluation does not significantly predict purchase behaviour in this model. This suggests that other real-time factors may override initial evaluations. Hypothesis (H6) is supported ($\beta = 0.129$; $p < 0.050$). Hence, purchase experience has a modest but significant impact on satisfaction, highlighting the importance of reliable delivery and fulfilment. Hypothesis (H7) is supported ($\beta = 0.436$; $p < .001$), as purchase experiences also significantly influence dissatisfaction. This indicates that poor collection/delivery processes can strongly increase dissatisfaction levels. Hypothesis (H8) is supported ($\beta = 0.206$; $p < .002$). Technology contributes significantly to post-purchase satisfaction, likely through post-sale support. Hypothesis (H9) is supported ($\beta = 0.323$; $p < .001$), which indicates that social media continues to play a strong role after purchase, likely through brand engagement, customer service, or community feedback. Hypothesis (H10) is not supported ($\beta = -0.084$; $p = 0.237$), as technology does not significantly reduce dissatisfaction, suggesting that tech alone may not mitigate negative post-purchase experiences (e.g., delays, unmet expectations). Hypothesis (H11) is supported ($\beta = 0.132$; $p < .049$). Social media has a positive and significant impact on dissatisfaction, which might reflect the amplification of negative experiences shared publicly or unresolved issues via social channels.

This dual pathway highlights the sensitivity of low-involvement consumers to delivery speed, payment convenience and overall ease, a valuable insight for grocery retailers navigating omnichannel environments.

These findings are particularly relevant within the South African Fourth Industrial Revolution (4IR) context, where digital technologies and peer feedback increasingly influence mobile-first consumers. This supports the integration of the Technology Acceptance Model (TAM) (Davis, 1989), emphasising perceived ease of use and usefulness and the Theory of Planned Behaviour (TPB) (Ajzen, 1991), which underlines the role of social norms and perceived control in shaping behavioural intentions. Together, these results reinforce the importance of a seamless digital strategy in engaging even routine, low-stakes shoppers in emerging market settings.

8.7 SUMMARY

This chapter analysed and interpreted shopper behaviour for high-involvement products (smartphones) and low-involvement products (groceries). It discussed pre-purchase, purchase and post-purchase shopper behaviour. This chapter also discussed social media engagement and usage and the risk factors associated with omnichannel shopping. Various statistical

techniques were employed to analyse and present the data. The inferential statistics on the research constructs were examined and SEM was used to fit the model and test the research hypothesis. The following chapter will review the practical findings and discuss the results according to the aim and objectives of this research study.

CHAPTER NINE: DISCUSSION OF RESULTS

9.1 INTRODUCTION

The previous chapter presented a comprehensive data analysis, incorporating statistical results through tables, graphs and figures. It detailed the measurement model, hypothesis validation and SEM outcomes. This chapter interprets these findings about the literature reviewed in chapters two, three and four.

The discussion begins by analysing respondents' demographic profiles and examining AI in in-store and online retail environments. The influence of social media on consumer behaviour is then explored, along with perceived risks, including financial, time-loss, logistics and delivery concerns. Additionally, consumer decision-making across the pre-purchase, purchase and post-purchase stages is assessed for high-involvement (smartphones) and low-involvement (groceries) products.

9.2 DEMOGRAPHICS

South African shoppers are diverse and dynamic, comprising tech-savvy Generation Y and Z consumers who are well-educated, trend-conscious and active in online and offline shopping. Females play a significant role in household purchasing, while male shoppers contribute substantially. Most hold tertiary qualifications and work in professional or managerial roles, with many earning more than R16 301 monthly, allowing them to afford premium products and services. Concentrated in urban hubs like Gauteng, KwaZulu-Natal and the Western Cape, they benefit from strong digital infrastructure and retail accessibility. These shoppers prioritise convenience, are highly brand conscious and respond well to personalised marketing and omnichannel platforms, reflecting their digital literacy and access to technology. However, economic and geographic disparities persist, with smaller segments hailing from lower-income or less urbanised areas. Overall, South African shoppers are modern, adaptable and aspirational, making them a prime audience for innovative retail strategies.

9.3 DISCUSSION AS PER OBJECTIVES

This section examines the research findings to ensure they align with the study's objectives. Each objective is addressed, linking empirical results to existing literature while highlighting key consumer behaviour patterns in omnichannel shopping. The discussion explores AI's role in enhancing the shopping experience, the influence of social media on consumer decision-making, perceived risks affecting online transactions and behavioural differences across the pre-purchase, purchase and post-purchase stages.

9.3.1 OBJECTIVE 1: To describe the omnichannel shopper behaviour in the emerging Fourth Industrial Revolution in South Africa

This objective examines how South African consumers navigate omnichannel shopping in the 4IR context. The findings highlight how technological advancements, including artificial intelligence, automation and digital payment solutions, reshape consumer interactions with retailers across online and offline channels. Consumers increasingly expect seamless integration between digital and physical retail spaces, leveraging multiple platforms to enhance convenience, efficiency and engagement. While urban consumers show higher adoption rates of digital tools, infrastructural challenges and digital literacy gaps still affect omnichannel adoption in some regions. Understanding these behavioural patterns is crucial for retailers who aim to optimise their strategies and cater to the evolving needs of South African shoppers in the 4IR era.

9.3.1.1 Omnichannel retailing in South Africa

South Africa's omnichannel retail landscape is rapidly expanding, driven by increasing internet access and mobile usage. Leading retailers like TFG have embraced digital transformation with initiatives like Bash, significantly boosting online sales (The Foschini Group, 2023). Younger consumers prioritise convenience and personalisation, with trust and ease of use playing key roles in online adoption (Cloete and Mugobo 2021). Urban hubs, mainly Gauteng, benefit from advanced digital infrastructure, while rural areas face ongoing disparities (Cloete and Mugobo 2021). AI and big data are improving personalisation and operational efficiency (Welbotha and van den Berg 2024), yet challenges remain, including the digital divide, cybersecurity risks and logistical inefficiencies (Cloete and Mugobo 2021). The COVID-19 pandemic accelerated e-commerce growth, highlighting the urgent need for enhanced digital infrastructure and inclusive solutions to bridge urban-rural gaps (Aruleba and Jere 2022: 3).

i. Social media usage.

Expanding on AI-driven technologies, this section examines social media's role in shaping consumer purchasing decisions. Social platforms enhance digital engagement by enabling shoppers to share experiences, search for vendors, read reviews and compare prices. Working alongside AI, social media fosters connectivity, collaboration and informed decision-making, enriching the digital shopping experience.

ii. Posting on social media.

The study finds that respondents exhibit moderate engagement in posting shopping experiences (mean = 3.96, $P = .280$) (Table 7.1), indicating that while consumer-generated content influences purchasing decisions, it has not yet become a dominant factor. Posting contributes to social proof by fostering trust through shared insights and reviews, aligning with the post-purchase decision-making stage. Consumers post mainly to express satisfaction or dissatisfaction and provide reference points for others. Positive reviews build trust in brands, while negative reviews deter purchases.

Despite its influence, engagement remains moderate due to barriers such as privacy concerns, lack of confidence in public sharing, or limited motivation. While social media plays a vital role in consumer trust and purchase decisions, engagement in posting varies based on individual preferences and perceived benefits.

These findings align with prior research. Cialdini (2001) emphasises social proof's role in building trust, while Schiffman and Kanuk (2020) highlight posting as a key post-purchase activity that aids decision-making. However, Baz, Hajli, Shanmugam and Lin (2020: 457) note that engagement levels fluctuate due to cultural norms, privacy concerns and perceived benefits.

As digital literacy improves and online trust grows, engagement in posting shopping experiences is likely to rise. Retailers can encourage participation through incentives, user-friendly feedback platforms and interactive communities. Strengthening post-purchase engagement will enhance social proof, further shaping consumer trust and decision-making in omnichannel retailing.

iii. Searching on social media

The study finds that social media is a key tool for vendor searches (mean = 5.21, $P < .001$), offering convenience, accessibility and user-generated content like reviews and ratings that boost consumer confidence. These activities align with the pre-purchase stage, where consumers gather information, compare alternatives and form purchase intentions. Peer reviews are particularly influential (mean = 5.72, $P < .001$), reinforcing social proof by providing authentic insights into product quality and satisfaction and reducing uncertainty in decision-making.

These findings align with existing research. Bazi, Hajli, Hajli, Shanmugam and Lin (2020: 457) highlight social media's role in building trust through consumer-generated content, while Schiffman and Kanuk (2020) emphasise extensive information gathering in the pre-purchase stage. Cialdini (2001) suggests that peer experiences strongly influence purchasing decisions, a perspective supported by Chen and Xie (2008), who argue that online reviews enhance perceived value and purchase confidence.

Consumers increasingly rely on social media for vendor searches and reviews, so the demand for authentic, transparent information grows. Trust is shifting from brand-controlled messaging to peer-driven experiences, making interactive online communities and detailed reviews essential. Retailers can capitalise on this by fostering engagement, encouraging feedback and leveraging social listening tools to enhance brand credibility. In the evolving omnichannel landscape, prioritising authenticity and consumer-driven insights will be key to maintaining a competitive edge.

iv. Making price comparisons

The study finds that price (mean = 5.64, $P < .001$) and brand comparisons (mean = 5.50, $P < .001$) are highly engaged activities on social media, demonstrating convenience in helping consumers evaluate deals, product quality and customer feedback. Social platforms centralise this process by providing easy access to reviews, promotions and peer recommendations, which shape consumer decisions and reduce uncertainty.

Aligned with the pre-purchase stage, these activities help consumers assess value, compare alternatives and make informed choices. Social media enhances this by aggregating insights, reducing cognitive effort and facilitating real-time comparisons. Retailers can leverage these

behaviours by prioritising product reviews, price comparisons and brand discussions to foster trust and loyalty.

These findings support previous research. Zhang *et al.* (2014) emphasise that social media builds symbolic relationships through shared content that influences brand perceptions. Schiffman and Kanuk (2020) describe the pre-purchase phase as a critical stage of information gathering where price and brand comparisons shape purchase intentions. Chen and Xie (2008) highlight social media's role in simplifying decision-making, while Arnold (2018) underscores its impact on consumer behaviour through transparency and interactive content.

Although social media influences all stages of the consumer journey, its most substantial impact occurs in the pre-purchase phase through price and brand comparisons and in the post-purchase phase through shared experiences; as digital commerce evolves, reliance on peer-driven insights will grow, increasing demand for transparent, real-time product evaluations.

Retailers must adapt by enhancing price comparison tools, encouraging brand discussions and fostering authentic consumer-generated content. Providing reliable, real-time insights will strengthen trust, engagement and competitiveness in the evolving omnichannel retail landscape.

9.3.2 OBJECTIVE 2: To determine the 4IR emerging trends in omnichannel retailing

This section examines key emerging trends in omnichannel retailing driven by the 4IR, focusing on AI in in-store and online environments. It explores AI-powered personalisation, augmented reality (AR) for immersive shopping and chatbots for enhancing customer service. The section highlights how these advancements transform consumer experiences and retailer strategies in South Africa's digital commerce landscape.

9.3.2.1 Emerging 4IR trends in omnichannel retailing

South Africa's transition into the 4IR is marked by integrating AI, IoT, blockchain and robotics across industries to drive innovation, efficiency and economic growth (Thaichon *et al.* 2024: 164). Key sectors such as retail, healthcare, agriculture and smart cities are at the forefront of this transformation. Investments in broadband and 5G are strengthening digital infrastructure to enhance connectivity and bridge the digital divide (Cai and Lo 2020: 107729).

9.3.2.2 AI in retail

AI is a key driver of 4IR—transforming retail through personalised shopping, predictive analytics and seamless omnichannel integration. Chatbots, recommendation systems and dynamic pricing enhance customer engagement, while AI-powered inventory and supply chain management ensure efficiency and real-time stock visibility. Beyond retail, AI drives healthcare, agriculture and urban development innovation. However, concerns like data privacy, cybersecurity risks (Chatterjee 2018) and job displacement require attention. Adaptive policies, skill development and inclusive strategies are essential for equitable access to 4IR benefits. Initiatives like the 4IR Strategic Framework and the Presidential Commission on 4IR (South African Government Gazette: 5) underscore South Africa's commitment to fostering innovation and global competitiveness.

9.3.2.3 AI Online

AI online explores how artificial intelligence enhances online shopping by integrating technologies that improve the consumer experience. This section examines chatbot preferences for instant assistance, image-based shopping for visual searches, voice search for hands-free discovery and personalised recommendations tailored to shopper behaviour. These advancements underscore AI's growing role in reshaping digital retail, particularly in South Africa's evolving market.

i. Preference for chatbots

The study finds a moderate preference for chatbots in online customer service (mean = 4.20, $P = .049$) (Table 6.8), reflecting increasing adoption alongside persistent reservations. Chatbots provide convenience, instant responses and 24/7 availability, making them practical for handling basic queries and transactional support. However, consumers remain cautious about their ability to manage personalised interactions, complex issue resolutions and empathetic communication. Scripted responses often lead to frustration, reinforcing a preference for human assistance in certain situations.

Socio-economic and cultural factors influence chatbot adoption, with digital literacy and access to AI shaping consumer perceptions. Markets that favour human interaction may adopt chatbots more cautiously, balancing automation with personal service expectations.

Chatbots play a role throughout the consumer decision-making process:

- Pre-purchase: Offering product details, availability, pricing and promotions.
- Purchase: Assisting with order completion, checkout and payment issues.
- Post-purchase: Managing order tracking, returns, complaints and enquiries to enhance customer satisfaction.

These findings align with research emphasising the growing role of AI-powered chatbots in retail. Nguyen *et al.* (2021) highlight their efficiency in handling routine tasks, while Schiffman and Kanuk (2020) stress their importance in guiding consumers across shopping stages. However, concerns persist about limited personalisation and emotional intelligence, corroborating prior studies on consumer dissatisfaction with purely automated interactions.

The future of chatbots depends on advancements in natural language processing (NLP), sentiment analysis and AI-driven empathy modelling, which will enable more human-like interactions. Retailers should adopt hybrid service models, where chatbots manage routine queries while escalating complex concerns to human agents. AI-driven personalisation can improve chatbot engagement by making interactions more intuitive and contextual.

Businesses must tailor chatbot strategies to diverse consumer needs and integrate human-assisted AI models where personalised service remains essential. As AI-powered customer service evolves, ongoing innovation in chatbot efficiency, transparency and adaptability will be key to strengthening digital engagement in omnichannel retail.

ii. Image-based shopping

The study finds moderate engagement in image-based shopping (mean = 4.17, $P = .85$) (Table 6.8), indicating its potential alongside adoption challenges. Consumers remain unfamiliar with the feature and accessibility issues persist as not all platforms support image-based search. The process can feel cumbersome compared to traditional methods, while inaccuracies in image recognition and privacy concerns further hinder engagement. Cultural preferences for familiar shopping habits and varying levels of digital literacy also contribute to cautious adoption.

These findings align with existing literature, highlighting the promise and limitations of image-based shopping. Hure *et al.* (2017) emphasise that improving search accuracy and processing speed and expanding product databases are key to increasing engagement. Subramanian (2023) notes that while visual search has transformative potential, accessibility, recognition accuracy and privacy concerns must be addressed for widespread adoption. McLean *et al.* (2021) and

Subramanian (2023) position image-based shopping within the pre-purchase stage, where it enhances product discovery and decision-making by refining search relevance and improving consumer satisfaction.

Technological advancements and greater digital literacy are expected to drive adoption despite current barriers. Enhancing search accuracy, expanding databases and ensuring transparent privacy policies will be critical in fostering consumer trust. Retailers should integrate image-based search as a complement rather than a replacement for traditional search methods. By addressing technological and socio-economic barriers, businesses can bridge the gap between innovation and consumer readiness, positioning image-based shopping as a key driver of pre-purchase decision-making in digital commerce.

iii. Voice search

The study finds moderate engagement with AI-powered voice search technologies like Siri and Alexa (mean = 3.93, P = 2.88) (Table 6.8), reflecting a gradual shift towards hands-free digital shopping. While voice search offers convenience, adoption remains limited due to inconsistent speech recognition, privacy concerns and lack of seamless integration with shopping platforms. Many users find the technology unreliable, particularly when recognising diverse accents and languages, while data security fears further discourage its widespread use.

Voice search aligns with the pre-purchase stage of consumer decision-making by assisting with product searches, pricing enquiries and reviews. While it has the potential to facilitate checkout and reordering, its primary function remains information retrieval. However, the lack of full integration with digital shopping platforms reduces its effectiveness. Socio-economic factors influence engagement levels, including access to advanced devices and digital literacy.

These findings align with existing research. Schiffman and Kanuk (2020) highlight information gathering as a key component of decision-making, while Chen *et al.* (2019) emphasise the challenges of speech recognition, which leads to frustration. Lau *et al.* (2020) and Subramanian (2023) further stress privacy concerns and the limited functionality of voice search, restricting its broader adoption.

As AI advances, improvements in speech recognition, natural language processing and AI-driven personalisation will enhance voice search accuracy and usability. To increase adoption, retailers must integrate voice search more deeply into shopping platforms, enabling seamless transitions

from search to purchase with features like cart management and voice-enabled checkout. Strengthening privacy policies and security measures will also build consumer trust.

As digital literacy improves and hands-free interactions become more common, voice search is expected to evolve from a supplementary tool to a core feature in the omnichannel shopping experience, reshaping digital commerce.

iv. Personalised product recommendations

The study finds that personalised product recommendations significantly influence consumer purchase decisions (mean = 5.29, $P < .001$) (Table 6.8), highlighting their role in shaping consumer choices, particularly in the pre-purchase phase. The demand for tailored experiences reflects the growing expectation of customisation in the 4IR.

During the pre-purchase stage, AI-driven recommendations streamline product discovery by analysing preferences, browsing history and past purchases, reducing cognitive effort and enhancing confidence in decisions. In emerging markets with varying digital literacy, personalisation helps consumers navigate online shopping more efficiently. Beyond pre-purchase, personalised recommendations drive higher transaction values by suggesting complementary products at checkout, fostering trust and encouraging repeat purchases.

These findings align with the literature, emphasising AI's role in enhancing consumer decision-making. Botha (2019) highlights personalisation as central to 4IR-driven retail strategies, while Schiffman and Kanuk (2020) describe pre-purchase as an exploratory phase where tailored recommendations simplify choice and improve purchasing intent. McLean *et al.* (2021) further assert that AI-powered recommendations encourage impulse buying and cart expansion, strengthening consumer trust and long-term loyalty. Subramanian (2023) underscores personalisation's impact in emerging markets by optimising product discovery for time-constrained shoppers.

As consumer demand for highly personalised experiences grows, AI-driven recommendation systems will continue evolving. Future advancements in ML, predictive analytics and behavioural modelling will refine recommendation accuracy, making them more responsive to individual needs. Retailers must enhance algorithmic transparency, data privacy protection and seamless omnichannel integration to maximise engagement and trust.

By leveraging AI-powered customisations and predictive insights, businesses can deliver highly relevant shopping experiences, reinforcing their competitive edge in the digital retail landscape.

9.3.2.4 AI In-store

AI in-store explores the impact of AI-driven technologies in physical retail, enhancing convenience, personalisation and efficiency. This section examines innovations like self-service checkouts, smart shelf tags, intelligent displays and targeted mobile deals, demonstrating how AI bridges digital and in-store shopping to meet evolving South African consumer expectations.

i. Self-service checkouts

The study finds a strong consumer preference for self-service checkouts (mean = 5.13, $P < .001$) (Table 6.2), driven by the need for speed, autonomy and convenience. These systems reduce queue times, enhance transaction control and appeal to tech-savvy consumers who prefer minimal human interaction. Multiple payment options further improve flexibility and efficiency during the purchase phase.

Self-service checkouts align with the purchase stage of the consumer decision-making process, streamlining transactions by allowing shoppers to scan, bag and pay independently. The preference for these technologies reflects a broader shift towards digital retail adoption, where efficiency and reduced friction drive consumer satisfaction.

These findings align with the literature, emphasising the growing demand for autonomy in retail transactions. Malinga (2023), Stiehler-Mulder and Mehlape (2021) and Jegede (2021) highlight their popularity due to reduced human interaction and faster transactions. Cotarelo *et al.* (2021) and Grewal *et al.* (2016) further note their role in lowering checkout times and enhancing consumer control.

Retail trends indicate continued innovation in self-service technology, integrating AI-powered assistance, biometric payment authentication and real-time inventory updates. To maximise adoption, retailers should ensure user-friendly interfaces, omnichannel integration and hybrid checkout options that cater to diverse consumer needs. Addressing technological resistance and job displacement concerns will also be key to smoother transitions.

As expectations for speed and efficiency grow, self-service checkouts will play an increasingly pivotal role in retail. Retailers who invest in cutting-edge self-service solutions with customer-centric designs will be well-positioned in the evolving digital commerce landscape.

ii. Smart Shelf Tags and Intelligent Displays

The study finds a strong consumer preference for smart shelf tags (mean = 5.60, $P < .001$) and intelligent displays (mean = 5.36, $P < .001$) (Table 6.2), emphasising their role in enhancing in-store shopping experiences. These technologies provide real-time product updates, including pricing, promotions and stock availability, allowing consumers to make informed purchasing decisions independently. They improve efficiency, transparency and trust by reducing reliance on store personnel and streamlining product evaluations.

Smart shelf tags and intelligent displays align with the pre-purchase stage of consumer decision-making, where shoppers gather information, compare options and refine purchase intentions. Their ability to provide instant, accurate product details enhances consumer confidence and decision-making, reinforcing their value in modern retail environments.

These findings align with existing literature on retail technology adoption. Kheswa (2023) highlights how these digital tools empower consumers by reducing information asymmetry and fostering self-guided shopping experiences. Priporas *et al.* (2017) and Schiffman and Kanuk (2020) further emphasise that real-time updates enhance product visibility, increasing trust and engagement. Cotarelo *et al.* (2021) also note that retailers who integrate such innovations optimise in-store navigation and drive purchasing decisions.

As retail technology advances, smart shelf tags and intelligent displays will play an increasingly vital role in personalised, AI-driven shopping experiences. Future developments may incorporate dynamic pricing, AI-powered recommendations and augmented reality (AR) to enhance decision-making further. To maximise adoption, retailers must focus on consumer education and seamless omnichannel integration, ensuring these technologies align with evolving shopping behaviours. By leveraging digital tools, prioritising efficiency, transparency and innovation, retailers can enhance engagement, foster trust and drive higher conversion rates in the evolving retail landscape.

iii. Targeted Mobile Deals

The study finds a strong consumer preference for targeted mobile deals sent to smartphones in-store (mean = 5.32, $P < .001$) (Table 6.2), highlighting mobile technology's growing influence on purchase decisions. Real-time, personalised promotions enhance engagement by delivering relevant offers that create urgency, encourage impulse purchases and improve the shopping experience.

Targeted mobile deals are designed to align with the purchase stage of consumer decision-making, effectively influencing shoppers at the point of sale. These promotions reinforce purchase intentions and streamline decision-making by providing discounts, complementary products and bundle offers when consumers browse.

These findings align with the literature on mobile-driven retail strategies. Lyu *et al.* (2023) emphasise that personalised deals enhance consumer engagement and drive purchase behaviour. Beck and Rygl (2015) and Verhoef *et al.* (2015) position mobile promotions as critical in the purchase phase, influencing decisions when consumers are most receptive. Alexander and Kent (2022) further highlight that mobile promotions foster trust, satisfaction and loyalty, reinforcing the role of digital engagement in modern retail.

As mobile technology advances, AI and predictive analytics will refine the precision of targeted promotions, enabling hyper-personalised offers based on real-time behaviour and purchase history. Integrating these deals with loyalty programmes and omnichannel strategies will further enhance consumer engagement. However, retailers must maintain transparency in their data usage and privacy policies to build trust through personalised promotions.

Retailers who prioritise relevance, convenience and real-time engagement will be best positioned to capitalise on mobile-driven retail, bridging the gap between digital marketing and in-store transactions to foster long-term consumer loyalty.

9.3.3 OBJECTIVE 3: To analyse shopper behaviour on social media platforms

This section examines how consumers engage with social media throughout the shopping journey, from pre-purchase research to post-purchase reviews. It explores the influence of social media on brand awareness, peer recommendations and purchase decisions, highlighting how platforms such as Facebook, Instagram and TikTok shape consumer behaviour. The discussion

also covers the impact of influencer marketing, customer reviews and interactive content in driving engagement and trust. Additionally, it analyses how social media fosters brand-consumer relationships, influences loyalty and enhances the omnichannel shopping experience in South Africa.

9.3.3.1 Social Media Engagement

Expanding on social media usage, this section explores how shoppers actively engage with retailers through reactions, comments and influencer followings. This interaction fosters brand visibility, strengthens consumer connections and informs purchase decisions. The shift from passive browsing to active participation highlights social media's evolving role as a collaborative and influential shopping platform.

i. Posting

The study highlights the significant role of social media in consumer interactions with retailers and brands. A high engagement level (mean = 5.04, $P < .001$) (Table 7.7) shows that likes, shares, and comments enhance brand visibility, foster emotional connections and build a sense of community. These interactions serve as digital endorsements, amplifying consumer-brand relationships and strengthening brand presence.

Beyond passive engagement, social media reactions actively shape consumer perceptions and loyalty. Brands that acknowledge and respond to interactions build trust and authenticity, reinforcing consumer confidence. This aligns with research by Ntobaki (2023), Hansen and Sia (2015) and Quach *et al.* (2022), which emphasise the impact of brand responsiveness on engagement, credibility and decision-making.

Engagement will play a significant role in brand-consumer relationships as social media evolves. Retailers must shift from static content to dynamic, interactive strategies that prioritise real-time responses, user-generated content and community-driven initiatives. By fostering meaningful engagement, brands can convert passive observers into advocates, driving long-term loyalty and sustained online visibility in the digital commerce landscape.

ii. Commenting

The study finds that commenting on social media is a key engagement activity (mean = 4.56, $P < .001$) (Table 7.7), strengthening brand-consumer relationships through direct communication. Comments enable shoppers to share opinions, ask questions and provide feedback, fostering transparency and trust. They also contribute to social proof, influencing brand perception, purchase decisions and peer discussions that enhance community engagement.

Beyond consumer interactions, comments serve as valuable feedback mechanisms for retailers, offering real-time insights for product development, customer service improvements and marketing strategies. Brands that actively respond to comments build stronger emotional connections, reinforcing trust and loyalty.

These findings align with existing research. Voorveld (2018) highlights that social proof from commenting enhances brand credibility, while Bazi, Hajli, Hajli, Shanmugam and Lin (2020: 457) emphasise that user interactions strengthen consumer trust. Additionally, studies by Hansen and Sia (2015) and Voorveld (2018) support the role of comments in refining marketing strategies and improving customer satisfaction.

As social media continues to shape brand interactions, commenting will play an even more significant role in engagement and trust-building. Retailers should prioritise active participation, AI-driven sentiment analysis and personalised responses to foster meaningful interactions. Encouraging peer-to-peer discussions within comment sections will enhance brand credibility and community-driven engagement. Businesses that leverage commenting as a strategic tool will boost digital advocacy, drive brand loyalty and strengthen long-term consumer relationships.

iii. Sharing posts

The study highlights key social media engagement activities that enhance brand visibility, credibility and consumer loyalty. Sharing retailer posts (mean = 4.40, $P < .001$) (Table 7.7) is a low-effort, high-impact advocacy tool, helping consumers discover products, promotions and brand messages while reinforcing social proof in the pre-purchase stage.

Registering for competitions (mean = 5.08, $P < .001$) (Table 7.7) is a highly engaging gamification strategy that fosters brand loyalty. When an entry requires a purchase, it aligns with the

purchasing stage, driving transactional behaviour. Non-purchase-based competitions fit the pre-purchase stage, encouraging brand exploration and consumer engagement.

Following retailers on social media (mean = 5.26, $P < .001$) (Table 7.7) influences all decision-making stages but is most impactful in the pre-purchase phase, keeping consumers updated on products, promotions and events. This behaviour strengthens consumer-brand relationships, supports seamless omnichannel integration and builds long-term loyalty.

These findings align with existing literature. Bazi, Hajli, Hajli, Shanmagum and Lin (2020: 457) highlight social proof through content sharing, while Urrego, Pineda and Restrepo (2024: 6) and Hansen and Sia (2015) emphasise gamification's role in driving engagement and loyalty. Voorveld (2018) underscores the significance of social media followership in consumer-brand interactions and omnichannel retailing.

As social media continues to redefine consumer engagement, retailers must refine their strategies by leveraging user-generated content, gamification and AI-driven personalisation. Integrating interactive content, influencer partnerships, and real-time engagement will enhance digital presence, strengthen advocacy and drive long-term consumer relationships. Businesses that proactively design campaigns around content sharing, competitions and followership will be well-positioned to thrive in the evolving s-commerce landscape.

iv. Influencers

The study finds that following social media influencers significantly shapes consumer behaviour and purchase decisions (mean = 4.76, $P < .001$) (Table 7.7), highlighting the growing impact of influencer endorsements on brand awareness and trust. Influencers serve as intermediaries between brands and consumers, using their credibility and personal connections to influence shopping behaviours and product choices.

This activity aligns primarily with the pre-purchase stage, where consumers follow influencers for product discovery, recommendations and evaluations. Influencers provide relatable content that helps shoppers visualise product use in daily life, simplifying their decision-making. They also act as sources of social proof, validating purchase considerations through reviews, tutorials and endorsements. Additionally, influencer-driven promotions, such as exclusive discounts and limited-time offers, extend their impact into the purchase stage, creating urgency and encouraging transactions.

These findings align with the literature on influencer marketing's role in shaping consumer perceptions. Abidin (2015) highlights that influencers create aspirational content that fosters trust and brand awareness. Voorveld (2018) notes how influencers bridge the gap between product evaluation and purchase decisions through social proof and promotional incentives.

As social media evolves, influencer marketing will play an increasingly vital role in brand strategy. Retailers should prioritise strategic influencer partnerships to maximise impact while ensuring alignment with target demographics and brand values. Integrating interactive content, live shopping and real-time engagement will enhance influencer-driven campaigns. Brands that effectively leverage influencers at key stages of the shopping journey will strengthen consumer relationships, boost brand visibility and drive long-term loyalty in an evolving digital marketplace.

9.3.4 OBJECTIVE 4: To analyse omnichannel shopper behaviour on high- and low-involvement products

This section examines how consumer behaviour differs between high-involvement (smartphones) and low-involvement (groceries) products in an omnichannel retail environment. It explores the decision-making process at the pre-purchase, purchase and post-purchase stages, highlighting the factors influencing consumer choices, such as product research, risk perception and engagement with digital and physical channels. The discussion also considers the role of trust, convenience and brand loyalty in shaping shopping behaviour for different product categories and provides insights into how retailers can tailor omnichannel strategies to meet diverse consumer needs.

9.3.4.1 PRE-PURCHASE PHASE

This section explores consumer behaviour before purchase, focusing on how shoppers gather information, compare options and evaluate alternatives in an omnichannel environment. It examines the role of digital touchpoints, such as social media, online reviews and retailer websites, alongside in-store experiences like product demonstrations and consultations. The discussion highlights differences in pre-purchase behaviour between high-involvement products, where extensive research and deliberation occur and low-involvement products, where convenience and habit play a more significant role. Understanding these patterns helps retailers optimise their omnichannel strategies to influence purchase decisions effectively.

9.3.4.1.1 AWARENESS

Awareness is a key component of the pre-purchase phase in consumer decision-making, where shoppers gather information, explore options and evaluate preferences. This stage involves various behaviours across online and offline channels, illustrating how consumers navigate the omnichannel retail environment.

Key behaviours include viewing and shopping online, browsing in-store before purchasing online and engaging in in-store shopping through scrolling or direct exploration. These pathways highlight the interplay of convenience, trust and personal preference, offering insights into how South African shoppers balance digital and physical retail experiences.

i. Viewing Online and Shopping Online

The study finds a strong preference for online smartphone shopping (mean = 5.47, SD = 1.640, $Z = -13.401$, $P < .001$) (Table 8.1a), driven by convenience, competitive pricing and mobile internet access. A high median score of 6 reinforces this trend, highlighting how digital platforms facilitate informed decision-making. However, concerns over cybersecurity risks and digital literacy gaps persist, limiting adoption among certain consumer groups.

Online grocery shopping shows moderate engagement (mean = 5.11, SD = 1.879, $Z = -10.016$, $P < .001$) (Table 8.1b), with consumer hesitation stemming from freshness concerns and product substitutions. These logistical challenges and trust issues impact adoption, reflecting a mixed response to online grocery retail.

These findings align with existing literature. Forsythe *et al.* (2006) emphasise product comparison as a confidence booster in online shopping, while Mpinganjira (2021) highlights the mobile internet's role in e-commerce growth. Concerns about cybersecurity and digital literacy barriers align with challenges in emerging markets. Similarly, Huang and Oppewal (2006) and Mpinganjira (2021) highlight trust in quality assurance and delivery efficiency as key determinants of online grocery adoption.

As digital commerce evolves in South Africa, retailers must enhance consumer education on cybersecurity and improve mobile shopping interfaces to increase confidence in online smartphone purchases. For online grocery adoption, transparent quality policies, accurate order fulfilment and AI-driven personalisation will be critical for building trust. Investments in secure

payment systems, real-time inventory tracking and flexible return options will strengthen consumer engagement, positioning retailers for success in South Africa's growing e-commerce landscape.

ii. Looking In-Store and Shopping In-Store

The study finds a strong preference for in-store smartphone shopping (mean = 5.29, SD = 1.580, $Z = -12.679$, $P < .001$), driven by the need for hands-on product testing, immediate availability and expert advice. Consumers value the ability to assess high-value products physically, reinforcing the role of physical retail in smartphone purchases. Cultural factors and concerns over online payments further sustain in-store shopping, particularly among older or less tech-savvy consumers.

For groceries, the preference for in-store shopping is even stronger (mean = 6.20, SD = 1.289, $Z = -16.916$, $P < .001$) (Table 8.1b), reflecting cultural norms and the necessity of quality assessment for perishables. The ability to inspect fresh produce, interact with store personnel and make immediate purchasing decisions remains fundamental to grocery shopping behaviour.

These findings align with existing literature. Klapdor *et al.* (2015) emphasise the importance of tactile product evaluation, supporting the study's conclusion that physical interaction enhances smartphone purchasing confidence. Mpinganjira (2021) highlights cultural influences and trust issues with online payments, reinforcing why in-store shopping remains dominant for high-value items. Similarly, Mpinganjira (2021) discuss the role of immediacy and personal interaction in grocery shopping, aligning with the study's findings on consumer reliance on in-store experiences.

Integrating digital and physical shopping will be key to meeting consumer expectations as retail evolves. For smartphones, retailers should enhance in-store experiences with AR technology, AI-driven recommendations and expert consultations, blending digital convenience with physical reassurance. Addressing online payment concerns through secure transaction options and consumer education will also help bridge the trust gap.

For groceries, digital tools such as scan-and-go technology, personalised promotions and in-store navigation apps can complement traditional shopping. Ensuring consistent product quality, efficient checkout systems and strong customer service will maintain consumer trust and loyalty. Retailers that embrace a hybrid omnichannel approach will be best positioned to meet evolving

shopping behaviours, fostering engagement, convenience and trust across multiple retail channels.

iii. Scrolling Online and Shopping In-Store

The study finds that webrooming—where consumers browse smartphones online and purchase in-store—demonstrates the highest agreement among smartphone shoppers (mean = 5.81, SD = 1.418, $Z = -15.515$, $P < .001$) (Table 8.2a). This behaviour reflects consumers' efforts to mitigate risk by researching online while ensuring product quality in the stores, particularly for high-value purchases like smartphones. The preference for webrooming aligns with broader omnichannel behaviours, where shoppers strategically blend digital and physical retail experiences for convenience, information access and purchase confidence.

Webrooming is also prevalent in grocery shopping (mean = 5.57, SD = 1.669, $Z = -13.852$, $P < .001$) (Table 8.2b), where consumers use online tools to check availability, compare prices and plan purchases before visiting stores. However, in-store quality inspection remains essential for perishables, reinforcing the complementary roles of online and offline channels in grocery retail.

These findings align with existing literature. Brynjolfsson, Hu and Rahman (2013: 24) emphasise that webrooming reduces uncertainty by enabling online research while allowing final purchase decisions in-store. Verhoef *et al.* (2015: 175) highlight its role in enhancing consumer confidence through a hybrid shopping approach, supporting the study's conclusion that South African shoppers rely on this model for high-involvement purchases. Additionally, Alexander and Kent (2022: 102338) and RCS (2024) report the growing prominence of click-and-collect models, further reinforcing the integration of digital and physical commerce.

For groceries, Mpinganjira (2021: 169) notes that webrooming is particularly relevant in emerging markets, where online tools provide convenience, but in-store selection remains critical for perishables. This aligns with the study's findings that while consumers use online platforms for efficiency, physical verification remains a key driver of in-store grocery purchases.

To enhance the webrooming experience, retailers should improve digital product descriptions, implement virtual demonstrations and optimise in-store pickup options for smartphones. Trust-building initiatives such as extended return policies and seamless digital-in-store interactions can further strengthen consumer confidence. Enhancing real-time stock updates, dynamic pricing tools and satisfaction guarantees in grocery retail will improve the online-to-offline transition.

Strengthening click-and-collect services and fulfilment accuracy will also bridge the omnichannel divide.

As webrooming continues to shape shopping behaviours, retailers that seamlessly integrate digital and physical touchpoints will gain a competitive edge, fostering engagement, satisfaction and long-term brand loyalty in the evolving omnichannel marketplace.

v. Browsing In-Store and Shopping Online

The study finds that showrooming—browsing smartphones in-store before purchasing online—has the lowest engagement among smartphone shoppers (mean = 4.30, SD = 1.964, $Z = -3.199$, $P < .001$) (Table 8.2a). This reluctance stems from concerns over delivery reliability, online payment security and minimal price incentives. Consumers perceive the benefits of online purchasing as insufficient to outweigh the reassurance of in-store transactions.

For groceries, showrooming—browsing in-store and purchasing online—shows low engagement (mean = 3.68, SD = 2.096, $Z = -2.890$, $P = .004$) (Table 8.2b). Shoppers prefer immediate in-store purchases due to the time-sensitive nature of groceries and concerns over delivery reliability, particularly for perishables.

These findings align with existing literature. Arora and Sahney (2017: 89) and Klapdor *et al.* (2015: 433) highlight security concerns and logistical challenges as barriers to showrooming adoption in emerging markets, reinforcing the study's conclusion that South African consumers remain cautious about online purchases for high-value items. Mpinganjira (2021: 166) notes that price disparities between online and in-store channels often do not drive showroom behaviour, aligning with the study's findings. Nguyen *et al.* (2021: 300) further emphasise that delivery efficiency and perishability concerns hinder grocery showrooming.

In contrast, developed markets show higher showrooming engagement due to stronger logistical networks and consumer trust in e-commerce (Alexander and Kent 2022: 102338). This highlights regional differences in omnichannel shopping behaviour, where showrooming adoption in South Africa remains contingent on improved logistics and digital security.

To encourage showrooming for smartphones, retailers should implement price-matching policies, in-store pickup for online orders and seamless return options to bridge the trust gap. Expanding

fast, reliable delivery networks and improving consumer education on digital payment security will also be key.

Retailers must address grocery delivery efficiency and perishability concerns by investing in cold-chain logistics, real-time tracking and flexible fulfilment options such as same-day delivery or in-store pickup. Strengthening consumer trust in order accuracy and quality control will drive adoption.

Retailers that proactively enhance digital security, logistics and pricing strategies will be better positioned to capitalise on emerging showrooming behaviours and ensure a seamless, risk-free omnichannel shopping experience. As technological advancements reshape retail landscapes, improvements in digital infrastructure will drive showrooming adoption and increase consumer confidence in online purchases.

9.3.4.1.2 SEARCH FOR INFORMATION

Information search is a key component of the pre-purchase phase, where consumers actively seek knowledge to refine purchase intentions. This stage includes webrooming—researching online before purchasing in-store (Aw *et al.* 2021: 102328)—and showrooming—gathering in-store information before buying online (Fiestas and Tuzovic 2021: 102280). These behaviours help consumers validate choices, compare options and minimise risks by leveraging online and offline channels.

In South Africa, the prevalence of webrooming and showrooming is influenced by local infrastructure, trust in digital platforms and cultural shopping preferences. This offers key insights into the country's evolving omnichannel retail landscape.

i. Webrooming

The study finds strong consumer engagement in webrooming—researching online before purchasing in-store—for both smartphones (mean = 5.57) (Table 8.2a) and groceries (mean = 5.48) (Table 8.2b). Consumers rely on online smartphone resources to compare prices, read reviews and evaluate specifications while still preferring in-store purchases for product assurance and trust. In grocery shopping, webrooming allows consumers to plan trips and compare prices online, but physical inspection of perishables remains essential, reinforcing the complementary role of digital and in-store shopping.

These findings align with the literature on webrooming as a key omnichannel behaviour. Brynjolfsson, Hu and Rahman (2013: 24) highlight its prevalence in high-involvement purchases, supporting the study's conclusion that South African consumers value online research but trust in-store transactions. Alexander and Kent (2022: 102338) emphasise that logistical challenges and online payment hesitations in emerging markets further drive webrooming. For groceries, Mortimer, Fazal e Hasan, Andrews and Martin (2016: 202) discuss the blend of digital planning and in-store verification, aligning with the study's findings that South African consumers use online tools for efficiency but rely on physical shopping for quality assurance.

To enhance webrooming experiences, retailers must integrate online research with in-store convenience. For smartphones, expanding digital platforms with rich product content, virtual trials and real-time stock updates can facilitate seamless transitions to in-store purchases. In grocery retail, personalised recommendations, dynamic pricing and AI-driven assistants can enhance online planning, while interactive kiosks, digital shelf labels and mobile app integrations can strengthen in-store engagement. As webrooming remains dominant, businesses must optimise omnichannel strategies to align digital convenience with in-store confidence, fostering seamless, friction-free shopping journeys and long-term customer loyalty.

ii. Showrooming

The study finds low engagement in showrooming—browsing in-store before purchasing online—for both smartphones (mean = 4.23) (Table 8.2a) and groceries (mean = 3.86) (Table 8.2b). Consumers hesitate to adopt showrooming for smartphones due to logistical constraints, delivery concerns and trust issues with online transactions. The preference for immediate product acquisition limits this behaviour to high-value technology purchases.

Showrooming is even less common for groceries, as shoppers prioritise immediacy, freshness and purchase accuracy. Cultural preferences for traditional shopping habits and in-person quality inspection reinforce the continued reliance on in-store grocery purchases, despite the growing digital integration in retail.

These findings align with the literature suggesting that showrooming is less prevalent in markets with logistical inefficiencies and trust barriers. Mpinganjira (2021: 166) highlights South African consumers' reluctance toward online smartphone purchases due to delivery concerns, return complexities and payment security issues, supporting the study's conclusion that in-store

transactions remain preferred. For groceries, Alexander and Kent (2022: 102338) emphasise that showrooming is uncommon due to the time-sensitive nature of grocery shopping, where immediate fulfilment outweighs the convenience of online purchases. Cultural norms further reinforce in-person shopping preferences, particularly in emerging markets.

Retailers must improve delivery infrastructure, order accuracy and digital trust mechanisms to increase showroom adoption. For smartphones, introducing real-time online price matching, seamless in-store pickup for online orders and extended return policies can bridge the trust gap and encourage online transactions. Strengthening digital payment security and last-mile delivery solutions will further boost consumer confidence.

For groceries, enhancing delivery reliability, expanding fulfilment options like same-day delivery and offering freshness guarantees can address consumer concerns. AI-driven grocery recommendations and flexible online order modifications will also improve digital shopping experiences. Strategic advancements in logistics, consumer education and omnichannel integration will determine how successfully retailers foster showrooming adoption and ensure a seamless transition from in-store browsing to online purchasing.

9.3.4.1.3 EVALUATION OF INFORMATION

The evaluation of information is a key stage in the pre-purchase phase, where consumers assess factors influencing value, quality and convenience to finalise purchase decisions. This process involves considering price and discounts, which determine affordability and perceived value, alongside quality, which reflects durability, functionality, or freshness. Brand reputation and trust play a crucial role in credibility and reliability, while user-friendliness ensures ease of use and accessibility. Consumers also evaluate payment options, considering vendors' flexibility, like PayPal or Apple Pay and reflect on previous shopping experiences to gauge retailer interactions. Vendor trustworthiness, encompassing reliability and integrity, further influences decision-making, as does word of mouth, where recommendations from peers and customer reviews help validate choices. Information security is another critical factor, ensuring the safety of personal and financial data, while delivery and collection options address the reliability and flexibility of fulfilment methods. These factors collectively help consumers mitigate risks, enhance satisfaction and ensure purchase decisions align with expectations. In South Africa's omnichannel shopping context, this stage reflects the economic, technological and cultural influences shaping consumer preferences and decision-making.

i. Price and Discount

The study finds that price and discounts are key factors in South African consumers' purchasing decisions for smartphones and groceries, reflecting their financial sensitivity. For smartphones, price importance is evident (mean = 5.35, $Z = -16.982$, $P < .001$) (Table 8.3a), as consumers view them as high-value, aspirational products and prioritise affordability. Many shoppers compare prices across channels, using online platforms to find the best deals before purchasing in-store. The preference for discounts reflects South Africa's economic reality, where affordability strongly influences buying behaviour.

Similarly, the higher mean score of 5.56 for groceries underscores the critical role of price in essential purchases. With rising living costs, consumers seek promotions, bulk discounts and loyalty rewards to maximise their savings. This reinforces price sensitivity in grocery shopping, where consumers compare deals across multiple stores before purchasing.

These findings align with existing literature. Mpinganjira (2021: 170) highlights that South African smartphone consumers are highly price-conscious, frequently leveraging digital platforms for price comparisons and promotions. Lazaris and Vrechopoulos (2014: 340) reinforce that affordability is a key factor in smartphone purchases in emerging markets, where high-value tech products are viewed as long-term investments rather than impulse buys. In grocery retail, Deloitte (RSC 2024) reports that 47% of South African consumers actively seek ways to curb food overspending, supporting the study's conclusion that price sensitivity drives grocery purchases.

As financial constraints persist, retailers must refine pricing strategies to meet consumer expectations. Implementing dynamic pricing, price-matching guarantees and online-exclusive discounts can incentivise smartphone purchases. Flexible payment options like instalment plans and trade-in programmes can further enhance affordability. For groceries, AI-driven personalised discounts, targeted loyalty rewards and real-time price comparisons can strengthen consumer engagement. Retailers can boost trust and purchase conversion rates by leveraging digital platforms for promotional alerts and transparent discount structures.

Ultimately, businesses that prioritise competitive pricing, omnichannel promotions and affordability-driven strategies will strengthen consumer loyalty and sustain market relevance. With affordability remaining a primary purchase driver in South Africa, innovative pricing mechanisms will be essential in shaping long-term consumer engagement and shopping behaviour.

ii. Quality

The study finds that quality is the most critical factor influencing purchasing decisions for smartphones and groceries, reflecting strong consumer expectations for reliability and performance. For smartphones, quality received the highest importance rating (mean = 5.69, $Z = -18.363$, $P < .001$) (Table 8.3a), indicating that South African consumers view them as long-term investments, requiring a thorough evaluation of specifications, durability and technological innovation. Online reviews, product comparisons and expert recommendations further aid informed decision-making, reducing risks associated with high-value purchases.

Similarly, quality is paramount for groceries, with a mean score of 5.73 ($Z = -18.823$, $P < .001$) (Table 8.3b). Consumers prioritise freshness, nutritional value and safety, particularly for perishable items, relying on in-store inspections to assess quality. However, online grocery platforms increasingly incorporate quality assurance features like freshness guarantees and return policies to build consumer trust.

These findings align with the literature, emphasising quality as a central driver of consumer decisions. Brynjolfsson, Hu and Rahman (2013: 24) highlight that smartphone buyers meticulously assess durability, functionality and innovation before committing to a purchase, reinforcing the study's conclusion that South African consumers prioritise long-term reliability. For groceries, Huang and Oppewal (2006: 346) stress that freshness and safety are primary concerns, supporting the study's finding that physical inspections remain critical for in-store purchases. Additionally, quality assurance mechanisms in online grocery platforms—including freshness guarantees and transparent sourcing—are enhancing digital consumer confidence.

Retailers must strengthen quality assurance across omnichannel platforms to meet consumer expectations. For smartphones, this includes extended warranties, trade-in programmes and immersive digital experiences like augmented reality product trials to aid pre-purchase evaluations. AI-powered product recommendations and expert-led reviews can further streamline decision-making for quality-conscious consumers.

Retailers should enhance freshness tracking, return policies and transparent sourcing information for groceries. Investing in AI-driven quality monitoring, temperature-controlled logistics and consumer education on food safety can further build trust in online grocery shopping. Digital

engagement strategies, such as interactive product descriptions, sustainability certifications and farm-to-table traceability, can enhance confidence in physical and digital shopping environments.

As quality remains the dominant driver of purchasing behaviour, retailers that prioritise durability, functionality and freshness will sustain long-term relevance. In the evolving omnichannel landscape, strengthening quality assurance mechanisms will be essential for consumer trust, satisfaction and loyalty.

iii. Brand

The study finds that brand plays a crucial role in smartphone purchasing decisions. However, it is less influential for groceries. For smartphones, brand importance received a high mean score (5.34, $Z = -17.484$, $P < .001$) (Table 8.3a), indicating that South African consumers associate brand reputation with reliability, status and after-sales support. Leading brands are considered safer, offering durability, advanced technology and long-term software support. Younger demographics strongly favour global brands, using omnichannel platforms to compare options before purchasing.

In contrast, brand is less critical for groceries, with a lower mean score of 4.98 (Table 8.3b). South African shoppers prioritise price and quality over brand loyalty, particularly for staple food items. However, trusted brands remain relevant in categories like milk, bread and canned goods, especially for online grocery purchases, where familiarity fosters consumer trust. Private-label and local brands are gaining traction among price-conscious consumers, offering affordability without compromising quality.

These findings align with the literature on brand equity in high-involvement purchases. Solomon *et al.* (2016: 248) highlight that brand perception drives consumer confidence, as established brands are linked to quality, innovation and reliability. This supports the study's conclusion that South African consumers, particularly younger buyers, prefer well-known global smartphone brands for their premium features and extended support. In grocery retail, Mpinganjira (2021: 172) notes that price and quality outweigh brand loyalty, consistent with the study's finding that affordability drives food purchases, particularly in staple categories. Additionally, research highlights that private-label brands are increasingly appealing to cost-conscious consumers, offering a balance of price and quality.

To stay relevant, retailers and brands must adapt to evolving consumer priorities. Maintaining substantial brand equity through continuous innovation, digital marketing and superior after-sales service for smartphones will sustain consumer loyalty. Retailers should integrate immersive shopping experiences like virtual product trials, AI-driven recommendations and influencer collaborations to engage younger, tech-savvy buyers.

For groceries, brands must prioritise affordability and quality, using competitive pricing, promotional campaigns and loyalty programmes to retain consumers. Online grocery platforms should enhance trust through transparent sourcing, quality guarantees and dynamic pricing models. Private-label and local brands can expand their market share by positioning themselves as affordable yet high-quality alternatives to premium brands.

As brand relevance evolves, retailers must align with consumer preferences and omnichannel shopping behaviours to foster trust, engagement and long-term loyalty across product categories.

iv. User-Friendliness

The study finds that user-friendliness is crucial in consumer decision-making for smartphones and groceries, ensuring a seamless shopping experience. For smartphones, user-friendliness received a high mean score (5.34, $Z = -17.961$, $P < .001$) (Table 8.3a), indicating that South African consumers value intuitive design, ease of navigation and accessibility. Simplified interfaces help first-time users adopt advanced technology, while in-store interactions allow consumers to assess usability before purchase.

For groceries, user-friendliness also plays a significant role, with a mean score of 5.26 (Table 8.3b). Efficient search filters, intuitive navigation and mobile-friendly designs enhance online grocery shopping, particularly for time-sensitive consumers like working professionals and parents. The findings highlight that user-friendly platforms improve engagement and convenience, sustaining long-term digital adoption.

These results align with the literature on technology adoption and digital retail engagement. Arora and Sahney (2017: 91) argue that intuitive smartphone interfaces reduce cognitive load, particularly for consumers new to high-tech devices, reinforcing the study's conclusion that usability drives smartphone adoption. Additionally, research on omnichannel retailing confirms that in-store interactions strengthen smartphone purchase confidence. For groceries, Mortimer *et al.* (2016: 137) emphasise that online grocery success depends on usability, efficient search

functions and streamlined checkout processes, which align with the study's findings that South African consumers value digital convenience.

To meet evolving expectations, retailers and platform developers must enhance usability features. For smartphones, manufacturers should focus on customisable interfaces, AI-powered assistance and interactive in-store experiences to improve decision-making. Retailers should refine navigation, search functions and mobile responsiveness for online grocery platforms while integrating AI-driven recommendations, real-time inventory updates and voice-activated search tools.

v. Payment Options

The study finds that payment options are critical in consumer purchasing decisions for smartphones and groceries, reflecting the increasing reliance on digital and flexible payment methods. For smartphones, payment options received a mean score of 5.09 ($Z = -16.634$, $P < .001$) (Table 8.3a), highlighting that South African shoppers—especially in urban areas—prioritise instalment plans, mobile wallets and digital payment platforms like SnapScan, PayFast and buy-now-pay-later (BNPL) schemes. These options enhance affordability, enabling consumers to purchase premium devices without immediate financial strain.

For groceries, payment options received a slightly higher mean score of 5.16 (Table 8.3b), indicating a growing preference for contactless payments, tap-to-pay solutions and mobile wallets. The study suggests that convenience, speed and security drive digital payment adoption, aligning with South Africa's transition toward financial inclusion and reduced cash dependency.

These findings align with the literature on evolving payment preferences. BigCommerce (2024) reports that consumers are shifting towards contactless, mobile and instalment-based online and physical retail payment options. This supports the study's conclusion that South African shoppers, particularly in urban areas, prioritise flexible, accessible and secure payment solutions. Similarly, Mpinganjira (2021: 169) highlights the increasing adoption of tap-to-pay and mobile wallets, especially in well-developed fintech regions, reinforcing the study's finding that digital financial solutions improve transaction efficiency, security and convenience.

As digital financial ecosystems expand, retailers must adapt payment solutions to meet evolving consumer expectations. Increasing access to BNPL schemes, zero-interest instalments and AI-

driven credit approvals can broaden smartphone market reach. Ensuring secure, frictionless checkout experiences across omnichannel platforms will drive adoption and build consumer trust.

For groceries, retailers should extend digital payment infrastructure beyond urban areas and promote financial literacy to encourage cashless transactions. Integrated AI-driven budgeting tools, personalised spending insights and loyalty-linked payment solutions can enhance customer engagement and retention.

Ultimately, payment innovations' success in omnichannel retail depends on their ability to balance convenience, security and inclusivity. Retailers who prioritise seamless payment integration and consumer-centric financial solutions will drive adoption, enhance satisfaction and sustain long-term competitiveness in South Africa's evolving digital commerce landscape.

vi. Previous Shopping Experience

The study finds that previous shopping experience plays a moderate but notable role in shaping consumer trust and purchasing decisions for smartphones and groceries. For smartphones, previous shopping experience received a mean score of 4.91 (Table 8.3a), suggesting that while past interactions with retailers' influence confidence, price and quality remain the primary drivers. Consumers consider customer service, warranty policies and product reliability, but objective factors like specifications and affordability precede high-value purchases.

In contrast, grocery shoppers place greater importance on previous shopping experiences, reflected in a higher mean score of 5.31 (Table 8.3b). Trust in consistent product quality, pricing and service reliability fosters retailer loyalty, particularly for staple and perishable goods. Familiarity with reliable grocery retailers reinforces long-term customer retention, making past shopping interactions a key factor in grocery decision-making.

These findings align with consumer decision-making literature. Brynjolfsson *et al.* (2013: 24) argue that while past shopping experiences shape perceptions, price and quality dominate high-value smartphone purchases. This supports the study's conclusion that past retailer interactions build trust but do not outweigh affordability and product specifications. For grocery shopping, Huang and Oppewal (2006: 346) highlight that repeat shopping behaviours are driven by retailer trust and service consistency. This reinforces the study's findings that habitual shopping patterns form when retailers meet availability, pricing and quality assurance.

As consumer preferences evolve, retailers must leverage previous shopping experiences to build stronger customer relationships. For smartphones, brands should focus on personalised after-sales support, transparent warranty policies and seamless return processes to foster loyalty. Exclusive incentives and omnichannel engagement can also encourage repeat purchases.

Maintaining high service reliability and product consistency will be key for groceries. Retailers should implement data-driven personalisation by offering tailored promotions based on purchase history to reinforce positive shopping experiences. AI-powered recommendations and real-time stock updates on digital grocery platforms can enhance convenience and drive repeat business. Previous shopping experience will remain critical to consumer trust and brand loyalty. Retailers prioritising consistent service quality, personalised engagement and omnichannel convenience will be best positioned to sustain long-term consumer relationships and drive repeat purchasing behaviours in smartphone and grocery retailing.

vi. Trustworthiness of Vendor

The study finds that vendor trustworthiness is crucial in consumer purchasing decisions for smartphones and groceries, reinforcing the need for reliability and transparency in retail. For smartphones, trust scored highly (mean = 5.60, $Z = -18.288$, $P < .001$) (Table 8.3a), highlighting that South African consumers prioritise secure transactions, transparent policies and strong after-sales support when making high-value purchases. Consumers rely on omnichannel retailers with clear return policies, warranties and responsive customer service to mitigate risks.

For groceries, trustworthiness was similarly important (mean = 5.59) (Table 8.3b), where product quality, reliability and accurate delivery representation influence purchasing decisions. Trust is especially critical in online grocery shopping, where consumers depend on verified product quality and transparent refund policies.

These findings align with existing research, emphasising that trust in smartphone retailers reduces risks related to fraud, counterfeit products and post-purchase dissatisfaction (Solomon *et al.* 2016: 240). This supports the study's conclusion that South African shoppers favour retailers with transparent business practices and reliable after-sales support. Similarly, Mpinganjira (2021: 172) underscores that trust in grocery vendors is essential for food retail, particularly when purchasing perishables online.

To strengthen consumer trust, retailers must prioritise secure transactions, extended warranties and strong customer support. Implementing blockchain for product authentication and AI-powered fraud detection can enhance credibility in smartphone retail. Rigorous quality checks, real-time tracking and transparent pricing ensure reliability for groceries. Retailers must adopt AI-driven inventory management and innovative quality assurance tools to maintain consumer confidence in digital grocery shopping. Ultimately, trust is a cornerstone of consumer decision-making. Retailers prioritising transparency, accountability and consumer-centric policies will build stronger brand loyalty and sustain a competitive advantage in the evolving omnichannel landscape.

vii. Word-of-Mouth

The study finds that word of mouth plays a key role in consumer decision-making for smartphones and groceries, reinforcing the power of peer recommendations in shaping purchasing behaviour. For smartphones, word of mouth scored 4.76 (Table 8.3a), highlighting that social proof helps reduce uncertainty and validate product claims. South African consumers rely on peer recommendations, online reviews and user-generated content to assess product reliability, durability and performance before committing to a high-value purchase. Given the financial risk associated with smartphones, trusted opinions are crucial in mitigating risk.

For groceries, word of mouth received a comparable mean score of 4.83 (Table 8.3b), emphasising its role in building trust, especially when purchasing from new or unfamiliar retailers. Consumers look for validation from those with prior experience, particularly when shopping for perishable goods on digital platforms. Since quality assurance is a significant concern, personal recommendations and online reviews influence trust in online grocery services.

The findings align with existing research, reinforcing that social proof significantly reduces consumer uncertainty (Bazi, Hajli, Hajli, Shanmagum and Lin 2020: 458). This supports the study's conclusion that South African smartphone shoppers actively seek trusted opinions before purchasing. Similarly, Mpinganjira (2021: 172) highlights that word of mouth is essential in building trust in online grocery retail, where consumers rely on testimonials to verify product quality and service reliability. Sopadjieva *et al.* (2017) further emphasise that omnichannel shoppers frequently engage in recommendations, contributing to brand advocacy across multiple touchpoints.

As digital connectivity continues to influence shopping behaviour, word of mouth will grow in importance, particularly in omnichannel retailing. For smartphones, retailers must actively engage with consumer reviews, encourage user-generated content and leverage influencer marketing to build trust. Given the high financial commitment, brands should prioritise transparent customer feedback systems, incentivise positive reviews and address negative feedback promptly.

Maintaining consistent product quality, reliable delivery and excellent service is key to sustaining positive word-of-mouth influence for groceries. Retailers can strengthen customer advocacy by implementing loyalty programmes, referral incentives and AI-driven sentiment analysis to refine offerings and enhance consumer relationships. Word of mouth remains a powerful driver of consumer trust in omnichannel retail, where peer validation, reliability and social engagement influence purchase decisions. Retailers harnessing recommendations and digital engagement effectively will be well-positioned to strengthen brand loyalty, increase consumer confidence and drive sustained growth.

viii. Information security

The study findings highlight that information security is critical in consumer decision-making for smartphones (mean = 5.49, Table 8.3a) and groceries (mean = 5.32, Table 8.3b). Consumers prioritise secure online transactions, particularly in omnichannel shopping environments, where sensitive personal and financial data is frequently exchanged.

Information security is essential for smartphones due to the higher financial stakes involved. Consumers prefer platforms with encrypted payment gateways, two-factor authentication and biometric verification to safeguard their data. The increasing use of mobile payment applications further reinforces the demand for robust authentication mechanisms. For smartphones and groceries, security concerns stem from the frequency of online transactions, which increases cumulative exposure to potential fraud. As digital payments become more prevalent in South Africa, consumers increasingly demand secure payment processes and fraud prevention measures to protect their financial data.

These findings align with existing literature on trust in online shopping. Beldad, De Jong and Steehouder (2010: 857) emphasise that encryption technologies like Secure Sockets Layer (SSL) and Transport Layer Security (TLS) help prevent fraud and identity theft, reinforcing consumer confidence. Secure payment gateways, such as PayPal and Apple Pay, act as intermediaries,

reducing the risk of exposing banking details to retailers. In South Africa, Mpinganjira (2021: 169) notes that concerns over data breaches and financial fraud have increased consumer vigilance, making trust seals (e.g., VeriSign, PCI DSS compliance) valuable indicators of retailer credibility.

Research also highlights that information security influences purchasing behaviours across multiple decision-making stages. During the pre-purchase phase, perceived security affects trust in an online retailer. At the purchase stage, robust security reduces hesitation, increasing the likelihood of transaction completion. Post-purchase, strong data protection fosters brand loyalty and repeat business (Mpinganjira 2021: 172).

As digital retail adoption grows, retailers must strengthen cybersecurity while educating consumers on safe online shopping practices. Although encryption and secure payments have improved data protection, emerging threats like phishing attacks and malware remain concerns. The digital divide in South Africa also leaves less tech-savvy consumers vulnerable to cyber risks. To address these challenges, retailers should invest in fraud detection systems, real-time transaction monitoring and transparent security policies. Proactively communicating security measures and implementing consumer education initiatives will enhance trust and differentiate retailers in South Africa's competitive omnichannel market. The growing importance of information security underscores its critical role in shaping consumer confidence, making it an essential factor for long-term engagement and digital retail success.

ix. Payment Vendors

The study findings indicate that payment vendors hold moderate importance in consumer purchasing decisions for smartphones (mean = 5.04, Table 8.3a) and groceries (mean = 4.69, Table 8.3b). While digital platforms like PayPal, Apple Pay and Google Pay are gaining traction in South Africa, their adoption remains limited due to banking constraints, compatibility issues and consumer scepticism.

For smartphones, consumers value digital payment solutions for their security, fraud protection and seamless integration with global ecosystems. Payment intermediaries, such as PayPal, offer additional protection by reducing direct exposure to banking details, reinforcing trust in online transactions. However, limited retailer acceptance and inconsistent banking support hinder widespread adoption.

Lower adoption in grocery shopping reflects the preference for widely accepted methods like debit/credit cards and EFTs. Since grocery purchases involve frequent, lower-value transactions, consumers perceive less necessity for advanced security layers. Additionally, many retailers incorporate payment functionalities into store-linked loyalty programmes, reducing the reliance on third-party vendors.

These findings align with existing literature, highlighting gradual digital payment adoption in emerging markets. Mpinganjira (2021: 170) notes that security concerns remain a primary barrier to digital payment use in South Africa, particularly for high-value transactions like smartphone purchases. Meanwhile, Arora and Sahney (2017: 91) emphasise that low digital literacy and trust issues slow the adoption of mobile wallets and contactless payments. Beldad, De Jong and Steehouder (2010: 857) highlight that secure payment intermediaries enhance consumer trust, but many South African shoppers still prefer familiar systems like EFTs and store-linked payment options (Mpinganjira 2021: 172).

As South Africa's digital economy evolves, smartphone penetration, internet connectivity and familiarity with digital financial services will likely accelerate digital payment adoption. However, to drive mainstream acceptance, payment vendors, banks and retailers must address key barriers:

1. Expand accessibility by improving banking integration and retailer adoption of digital payment platforms.
2. Enhance consumer trust by educating users on security benefits and fraud protection measures.
3. Simplify onboarding by streamlining registration and reducing technical barriers for first-time users.
4. Retailer incentives by offering cashback, discounts, or exclusive promotions for digital transactions.

While traditional payment methods currently dominate, the study suggests a gradual shift toward digital financial solutions. Businesses that prioritise secure, convenient and widely accepted payment options will be well-positioned to meet evolving consumer expectations in South Africa's omnichannel retail landscape.

x. Delivery/Collection Options

The study findings highlight that delivery and collection options are crucial in consumer satisfaction for smartphones (mean = 5.33, Table 8.3a) and groceries (mean = 5.08, Table 8.3b), reflecting the increasing demand for reliable and flexible fulfilment solutions in South Africa's omnichannel retail landscape.

The higher mean score for smartphones suggests consumers prioritise security, tracking and timely fulfilment due to the high financial investment in these purchases. Features such as trackable logistics, real-time updates and estimated arrival times mitigate risks of theft, damage, or delays. Many consumers, particularly in urban areas, prefer click-and-collect services for added convenience over waiting for home delivery (Mpinganjira 2021: 169).

The slightly lower mean for groceries reflects time-sensitive shopping concerns, particularly regarding freshness and perishability. Consumers expect timely deliveries, temperature-controlled transport and accurate fulfilment to maintain product integrity (Huang and Oppewal 2006: 346). Self-collection remains popular, allowing shoppers to inspect items personally, while concerns over substitutions and high delivery costs hinder broader adoption (Mortimer, Fazal e Hasan and Andrews 2016: 135). Logistical constraints in rural areas further impact accessibility (Mpinganjira 2021: 167).

The study findings align with existing literature on fulfilment efficiency in omnichannel retailing. Alexander and Kent (2022: 102338) highlight that tracking technology and automated notifications enhance transparency and consumer confidence in high-value smartphone purchases. Meanwhile, the World Economic Forum (2024) argue that micro-fulfilment centres and crowd-sourced delivery models could improve grocery logistics, particularly in urban settings.

As South Africa's retail landscape evolves, retailers must prioritise fulfilment innovations to enhance consumer satisfaction. Investments in real-time tracking, secure delivery and expanded click-and-collect services will strengthen smartphone trust and convenience. For groceries, improving last-mile delivery networks, cold-chain logistics and precise substitution policies will drive greater adoption of online grocery shopping.

Retailers who proactively invest in logistics infrastructure, optimise delivery transparency and offer flexible fulfilment solutions will gain a competitive advantage in South Africa's growing

omnichannel market. Reliability, efficiency and security in fulfilment will be key to fostering long-term consumer engagement and loyalty.

9.3.4.2 PURCHASE

This section examines consumer decision-making at the point of purchase, focusing on how omnichannel shoppers navigate between online and in-store transactions. It explores the factors influencing purchase decisions, such as payment preferences, checkout efficiency and trust in digital and physical retail channels. The discussion highlights distinctions between high-involvement products, where secure payment methods and warranty assurances play a crucial role and low-involvement products, where convenience, pricing and availability drive purchasing behaviours. Insights from this section provide a deeper understanding of how retailers can streamline the omnichannel buying experience to enhance consumer satisfaction and conversion rates.

9.3.4.2.1 Collection and Delivery

Collection and delivery options play a crucial role in the purchase phase of consumer decision-making, reflecting the demand for convenience, flexibility and reliability in South Africa's omnichannel shopping landscape. Consumers choose from various fulfilment methods, including buying online and collecting in-store, opting for home delivery, purchasing in-store with collection or delivery and curbside collection. These options cater to diverse preferences, ensuring a seamless transition between digital and physical shopping experiences while enhancing overall satisfaction and accessibility.

i. Purchase online and collect in-store.

The findings indicate a moderate preference for online smartphone purchases with in-store collection (mean = 4.26, Z-value = -2.675, $P = .007$) (Table 8.4a). This hybrid model appeals to consumers seeking the convenience of online shopping while benefiting from the security and immediacy of in-store pickup. By researching products online—comparing specifications, reviews and promotions—shoppers can make informed decisions before collecting their device, reducing delivery delays, theft, or damage risks. The ability to inspect the product at pickup further enhances consumer confidence, making this a viable option for high-value purchases like smartphones.

Conversely, online grocery purchases with in-store collection show lower adoption (mean = 2.018, Z-value = -2.142, P = .032) (Table 8.4b), reflecting a preference for traditional in-store shopping or home delivery. The tactile nature of grocery shopping, especially for perishables, influences consumer reluctance, as freshness, quality assessment and selection control remain key priorities. Additionally, concerns over order accuracy, substitutions and missing items further deter the adoption of this model.

These findings align with Mpinganjira (2021: 170), who notes that South African consumers prioritise security and convenience, particularly for high-value purchases like smartphones. The hybrid model fosters trust by allowing product inspections before finalising ownership. Brynjolfsson, Hu and Rahman (2013: 24) further argue that integrating digital and physical retail experiences enhances consumer confidence in omnichannel transactions. For groceries, Huang and Oppewal (2006: 346) highlight that physical product engagement is a key determinant in shopping decisions, explaining the limited enthusiasm for click-and-collect grocery services. Additionally, Mpinganjira (2021: 172) notes that service quality and infrastructure reliability significantly impact consumer perceptions of this model, particularly in emerging markets. The social aspect of in-store grocery shopping also plays a role. Mortimer, Fazal e Hasan and Andrews (2016: 135) suggest that many shoppers enjoy browsing, interacting with promotions and making impulse purchases, which are reduced in click-and-collect experiences.

As South Africa's omnichannel retail landscape evolves, improving the efficiency and reliability of hybrid fulfilment models will be essential for broader adoption. For smartphones, retailers must enhance integration between online and offline channels, ensuring a seamless purchase-to-collection experience. Fast-tracked pickups, clear communication on collection procedures and real-time inventory management will further boost consumer confidence in this model.

For groceries, retailers must overcome logistical challenges by investing in advanced order fulfilment systems, accurate inventory tracking and well-trained staff to reduce errors and improve reliability. Enhanced communication, real-time stock updates and quality assurance can further strengthen consumer trust. Additionally, retailers should recognise the cultural and behavioural aspects of grocery shopping in South Africa and position click-and-collect as a complementary service rather than a replacement. Personalised discounts, loyalty rewards and convenient collection points could encourage gradual adoption without disrupting consumer habits.

Ultimately, while online purchases with in-store collection remain an emerging trend, strategic investments in service reliability, operational efficiency and consumer education will be key to unlocking their full potential in the South African retail market.

ii. Purchase online and receive products through delivery.

The preference for purchasing smartphones online with home delivery is strong (mean = 5.09, Z-value = -10.136, $P < .001$) (Table 8.4a), reflecting South African consumers' growing reliance on e-commerce for high-value purchases. The ability to browse extensive product selections, compare prices and access online promotions enhances its appeal. Additionally, secure packaging, trackable logistics and insurance coverage help mitigate concerns over theft or damage. However, delivery delays in rural or high-traffic urban areas and fears of fraud or counterfeit products remain challenges for some consumers.

Similarly, online grocery shopping with home delivery is a highly preferred fulfilment method (mean = 5.23, Z-value = -11.019, $P < .001$) (Table 8.4b), particularly in urban areas, where convenience is a priority. Advances in cold chain logistics have improved confidence in perishable item deliveries. However, high delivery costs, limited rural service coverage and concerns over substitutions or missing items continue to pose barriers. Additionally, cultural preferences for in-store grocery selections and the social aspects of shopping influence consumer behaviour.

These findings align with Brynjolfsson, Hu and Rahman (2013: 24), who highlight that the ability to compare products online and enjoy seamless delivery drives e-commerce adoption. Solomon *et al.* (2016: 248) emphasise that secure delivery and insurance protection mitigate risk concerns, especially for high-value items like smartphones. For groceries, Mortimer, Fazal e Hasan and Andrews (2016: 135) highlight how logistical innovations, such as improved last-mile delivery and cold chain management, build trust in grocery e-commerce. Additionally, Mpinganjira (2021: 172) notes that leading South African retailers like Checkers and Pick n' Pay have strengthened same-day and next-day grocery deliveries, addressing consumer concerns over freshness and speed. However, Huang and Oppewal (2006: 346) argue that high delivery costs and rural infrastructure challenges limit widespread adoption, particularly among consumers who value the ability to physically inspect fresh produce.

As e-commerce expands in South Africa, retailers must prioritise efficient and secure delivery solutions to maintain consumer trust and drive further adoption. For smartphones, investments in

faster logistics, expanded regional coverage and fraud prevention measures will address consumer hesitations. Flexible delivery options, such as secure pick-up points and click-and-collect, can provide greater convenience and control. Optimising fulfilment processes through AI-powered inventory management and real-time stock updates for groceries will improve order accuracy and reduce substitutions. Retailers should also focus on educating consumers about the reliability of online grocery shopping, ensuring transparent communication on sourcing and delivery guarantees.

The rising preference for home delivery underscores the need for continued investment in logistics, consumer education and digital trust-building strategies. Retailers who enhance operational efficiency, pricing competitiveness and customer service will be well-positioned to capitalise on the growth of South Africa's omnichannel retail sector.

iii. Purchase products in-store and collect them in-store.

The findings indicate a strong preference for in-store smartphone purchases and collection (mean = 5.52, Z-value = -13.545, $P < .001$) (Table 8.4a), highlighting the continued significance of physical retail experiences in South Africa. Consumers prioritise hands-on product evaluations, expert guidance and immediate access when purchasing high-value, technologically complex items. Concerns over delivery reliability, product authenticity and online fraud further reinforce the preference for in-store transactions, where shoppers can verify purchases before completing them.

For groceries, in-store shopping remains dominant, with an even higher mean score of 6.17 (Z-value = -17.045, $P < .001$) (Table 8.4b). This preference reflects the importance of physically inspecting perishable goods to ensure freshness and quality. Additionally, grocery shopping is a routine and social activity that reinforces cultural shopping behaviours. Concerns over delivery delays, product substitutions and spoilage during transit deter consumers from adopting online grocery shopping.

These findings align with Solomon *et al.* (2016: 240), who emphasise the sensory and tactile benefits of in-store shopping, particularly for high-involvement purchases like smartphones. Mpinganjira (2021: 170) highlights concerns over online fraud and counterfeit products, making in-store shopping a preferred choice for authenticity verification. Similarly, Huang and Oppewal (2006: 346) and Mpinganjira (2021: 167) note that grocery shopping remains a social and habit-

driven activity, with consumers favouring a direct selection of perishable items over digital alternatives.

The findings highlight the need for retailers to optimise the in-store experience while strategically integrating digital enhancements. For smartphone retailers, improving the in-store environment through interactive product displays, knowledgeable staff and seamless checkout options can strengthen consumer engagement. Addressing security, delivery reliability and product authenticity concerns will be key to encouraging online adoption.

Integrating hybrid fulfilment models such as click-and-collect and loyalty-driven digital promotions for grocery retailers can bridge in-store and online shopping preferences. Investments in efficient fulfilment, improved substitution policies and enhanced cold chain logistics can overcome barriers to online grocery adoption.

Retailers must balance the sensory and social benefits of in-store shopping with strategies that enhance e-commerce trust and convenience. Those who successfully integrate omnichannel retailing while maintaining consumer confidence and operational efficiency will be well-positioned to meet evolving shopping expectations in South Africa's dynamic retail landscape.

iv. Purchase products in-store and receive delivery.

The findings indicate a low preference for purchasing smartphones in-store with home delivery (mean = 4.03, Z-value = -0.587, P = .557) (Table 8.4a), suggesting South African consumers favour immediate possession or fully online purchases with delivery. Given the high value of smartphones, consumers prefer direct collection to avoid delivery risks such as delays or mishandling. Similarly, purchasing groceries in-store with delivery is less favoured (mean = 4.00, Z-value = -0.977, P = .328) (Table 8.4b), as shoppers prefer to inspect perishables for freshness and quality and take them home immediately. Concerns over handling, product substitutions and delivery inefficiencies further discourage reliance on this model.

These findings align with Solomon *et al.* (2016: 240), who highlight the importance of tactile experiences in high-involvement purchases like smartphones. Mpinganjira (2021: 170) further notes that logistical challenges in South Africa, particularly in rural and urban areas, contribute to low adoption of delivery-dependent models. For groceries, Solomon *et al.* (2016: 125) emphasise that consumers prefer a physical selection of fresh produce, while Mpinganjira (2021: 172)

identifies logistical inefficiencies and high delivery costs as key deterrents to grocery delivery adoption.

Retailers must address concerns about trust and reliability to encourage the adoption of this hybrid fulfilment model. Secure and trackable logistics, extended warranties and exclusive delivery incentives could increase smartphone consumer confidence. For groceries, improvements in cold-chain logistics, transparent substitution policies and real-time tracking can enhance trust in delivery services.

Despite the current preference for in-store collection, strategic logistics and digital integration innovations can gradually shift purchasing behaviours. Retailers investing in delivery reliability, product handling transparency and consumer incentives will be better positioned to drive the adoption of hybrid fulfilment models in South Africa's evolving omnichannel retail landscape.

v. Purchases and collects curbside.

The findings indicate low consumer preference for curbside collection of smartphones (mean = 3.75, Z-value = -2.633, P = .008) (Table 8.4a), suggesting this fulfilment method is not widely adopted in South Africa. The low uptake may stem from smartphones' high value and complexity, as consumers prefer in-store experiences that allow for physical inspection and expert guidance. Similarly, curbside grocery collection shows limited adoption (mean = 4.00, Z-value = -2.010, P = .044) (Table 8.4b), as sensory interaction and quality assessment remain key drivers in grocery shopping. Logistical inefficiencies, such as parking constraints, wait times and order accuracy issues, may further discourage its use.

These findings align with Solomon *et al.* (2016: 240), who highlight that high-involvement purchases like smartphones require direct physical evaluation to ensure product quality and functionality. Mpinganjira (2021: 170) also notes infrastructural limitations in South Africa that may undermine the reliability of curbside services. For groceries, Solomon *et al.* (2016: 125) stress that sensory engagement remains crucial, particularly for perishables, making curbside collection less appealing than in-store shopping or home delivery. Mpinganjira (2021: 172) further suggests that trust and convenience play a significant role in grocery fulfilment choices and curbside services may not meet consumer expectations due to logistical constraints.

Retailers must align fulfilment options with consumer expectations. For smartphones, curbside collection may not adequately address the need for hands-on product verification. Improving

logistics, communication and service reliability could enhance adoption. For groceries, reducing wait times, improving order accuracy and promoting time-saving benefits could help curbside collection gain traction. As South Africa's retail infrastructure improves, operational efficiencies and service enhancements may encourage greater consumer acceptance of this fulfilment model.

9.3.4.2.2 Payment methods

This section examines consumer payment preferences for smartphones and groceries, highlighting the impact of convenience, trust and accessibility on purchasing decisions. Payment methods are crucial in the purchase phase, influencing how consumers navigate transactions across different retail channels. The analysis compares traditional payment options—such as credit and debit cards, both in-store and online—with emerging digital methods, including mobile payments, cash on delivery (COD) and payment apps like PayPal and Samsung Pay. The findings offer insights into South African consumers' attitudes toward security, ease of use and technological adoption in an evolving retail landscape by assessing the adoption of these methods for smartphones and groceries.

i. Pay using a credit/debit card while in-store.

The findings reveal a strong preference for in-store credit and debit card payments for both smartphones (mean = 6.02, SD = 1.391, $Z = -16.003$, $P < .001$) and groceries (mean = 6.41, SD = 0.945, $Z = -17.651$, $P < .001$) (Tables 8.5a, 8.5b). This preference reflects the security, convenience and widespread acceptance of card transactions in South Africa's retail landscape.

Card payments offer smartphone fraud protection, transaction records and payment flexibility, making them ideal for high-value purchases. Consumers value the tangible nature of in-store payments, reducing risks associated with online fraud or mobile payment failures. Additionally, interacting with sales staff provides purchase confirmation and reassurance, reinforcing consumer confidence.

The preference for card payments is even stronger for groceries, driven by their efficiency at checkout and integration with loyalty programmes. The widespread availability of POS terminals across supermarkets and smaller retailers ensures accessibility, while cashless transactions enhance security, especially in high-crime areas.

These findings align with Huang and Oppewal (2006: 348), who highlight fraud protection and transaction security as key drivers of card preference, particularly for high-value products. Mpinganjira (2021: 172) further notes that South African consumers associate in-store card payments with trust and transparency, reducing uncertainty. Similarly, Mortimer, Fazal e Hasan and Andrews (2016: 135) emphasise that card transactions streamline grocery shopping, improving speed and convenience.

Retailers can enhance engagement by optimising their POS systems and ensuring fast, secure transactions. Expanding loyalty-linked card incentives can drive consumer retention, while cybersecurity investments and fraud prevention education will further reinforce trust. By aligning with evolving cashless trends, businesses can strengthen their market position and enhance consumer experience.

ii. Pay using a mobile phone while in-store.

The findings indicate a moderate preference for in-store mobile payments for both smartphones (mean = 4.43, SD = 1.918, $Z = -4.486$, $P < .001$) and groceries (mean = 4.74, SD = 1.941, $Z = -7.455$, $P < .001$) (Tables 8.5a, 8.5b). This reflects the growing but limited adoption of mobile payment technologies like Apple Pay, Samsung Pay and QR-code platforms in South Africa.

Mobile payments appeal to smartphones due to their convenience and integration with contactless systems and loyalty programmes. However, limited infrastructure, security concerns and banking compatibility hinder widespread adoption (Mpinganjira 2021: 172). Consumers also perceive mobile payments as less secure than credit or debit cards, especially for high-value transactions.

Mobile payments show slightly higher adoption for groceries, particularly for small, frequent transactions in urban retail environments with modern POS systems. Platforms like SnapScan have gained traction, but inconsistent infrastructure, security concerns and consumer unfamiliarity remain barriers (Eksteen and Humbani 2021: 6). These findings align with Choi *et al.* (2020: 675), who highlight mobile payments' speed and convenience but note security risks and platform limitations as key barriers. Similarly, Gomber *et al.* (2018: 220) suggest that while mobile payments are rising, credit and debit cards remain dominant due to their reliability and broad acceptance.

To drive adoption, retailers should invest in secure, seamless mobile payment solutions and implement consumer education initiatives to build trust. Loyalty rewards and discounts could encourage usage while expanding acceptance among smaller retailers and rural areas, strengthening adoption. Overcoming these barriers will help align with global trends and meet evolving consumer payment preferences in South Africa's retail landscape.

iii. Pay cash on delivery (COD) when purchasing online.

The findings indicate a moderate preference for cash on delivery (COD) for smartphones (mean = 4.14, SD = 2.142, Z = -1.601, P = .109) and a slightly higher preference for groceries (mean = 4.36, SD = 2.102, Z = -3.618, P < .001) (Tables 8.5a, 8.5b). While COD remains relevant for some consumers, it is not the dominant payment method in South Africa.

For smartphones, COD provides a sense of security for consumers wary of online fraud or delivery issues, as payment is made only upon receipt. However, logistical challenges, security risks and the rise of digital payments among urban and tech-savvy consumers limit its appeal for high-value transactions (Mpiganjira 2021: 172). COD is seen as a practical option for groceries, particularly in areas with limited digital payment infrastructure. It allows consumers to inspect perishable items before paying, reducing concerns about incorrect orders or poor-quality goods (Huang and Oppewal 2006: 347).

These findings align with Choi *et al.* (2020: 677), who highlight COD's prevalence in markets where trust in online payments is low, especially among first-time or infrequent shoppers. However, Mpiganjira (2021: 172) notes that consumers prefer secure digital payments that protect against fraud and reduce cash-related risks for high-value items like smartphones. Conversely, COD remains popular for groceries, where lower financial stakes and the need for quality assurance drive consumer preference.

As South Africa's digital payment landscape evolves, COD usage will decline. To encourage digital adoption, retailers should offer incentives such as discounts and cashback while ensuring secure transactions and reliable logistics. Maintaining COD as an option for hesitant consumers—particularly in areas with limited digital payment access—can help build trust. However, investments in efficient order fulfilment, transparent return policies and consumer education on digital payment security will further drive South Africa's transition to a more digitalised retail ecosystem.

iv. Pay using payment apps when buying online (PayPal, Samsung Pay, etc.).

The findings indicate a moderate preference for payment apps like PayPal and Samsung Pay for smartphone purchases (mean = 4.53, SD = 1.988, $Z = -5.294$, $P < .001$) and a slightly higher preference for groceries (mean = 4.84, SD = 1.915, $Z = -7.886$, $P < .001$) (Tables 8.5a, 8.5b). While payment apps offer security, contactless transactions and integration with loyalty programmes, adoption in South Africa remains limited due to infrastructure challenges, security concerns and inconsistent platform compatibility (Gomber *et al.* 2018: 20).

Smartphone adoption is hindered by trust issues, compatibility limitations and a preference for traditional card payments, which are widely accepted and perceived as secure (Mpiganjira 2021: 172). Consumers fear fraud and transaction failures when using payment apps for high-value purchases. In contrast, groceries show slightly greater adoption, as app-based payments provide speed and efficiency at checkout, particularly in urban areas with modern POS systems and reliable internet connectivity (Choi *et al.* 2020: 676).

Despite these advantages, low digital literacy, unreliable internet and limited awareness restrict broader usage, especially in rural and peri-urban regions (Mpiganjira 2021: 170). While global trends point to rising mobile payment adoption, South Africa's uptake remains constrained by fragmented banking infrastructure and retailer acceptance (Gomber *et al.* 2018: 20).

To drive adoption, retailers must invest in secure, user-friendly payment technologies and launch awareness campaigns to build consumer confidence. Offering discounts, cashback incentives and exclusive promotions for payment app users can encourage adoption. Additionally, enhancing platform compatibility across banks, vendors and retailers will streamline transactions and improve user experience. Addressing these barriers will accelerate South Africa's shift toward secure and efficient digital payments, aligning with global trends while fostering greater consumer trust and convenience.

v. Pay using a credit/debit card when purchasing online

The findings highlight a strong preference for online smartphone purchases using credit or debit cards (mean = 5.54, SD = 1.709, $Z = -13.185$, $P < .001$) (Table 8.5a), reinforcing their role as the dominant digital payment method in South Africa. Card payments offer security, reliability and wide acceptance, particularly for high-value purchases, where features like 3D Secure authentication and OTP verification enhance trust. Consumers also value banks' dispute

resolution mechanisms, protecting against fraud or failed transactions. Integrating card payments with online platforms further streamlines the purchase experience, reducing barriers to completing transactions.

For grocery purchases, card payments show even higher preference (mean = 5.86, SD = 1.513, $Z = -15.100$, $P < .001$) (Table 8.5b). Their widespread adoption is driven by convenience, speed and integration with online grocery platforms. Consumers favour card transactions for quick, frequent purchases, avoiding cash handling while benefiting from loyalty programmes and rewards. The efficiency of seamless POS transactions in urban grocery stores further solidifies this preference.

These findings align with Gomber *et al.* (2018: 222), who identify card payments as the foundation of secure e-commerce transactions. For smartphones, Choi *et al.* (2020: 679) emphasise the importance of security measures, such as transaction authentication and fraud monitoring, in driving consumer confidence. Research suggests that credit and debit cards are preferred for groceries due to speed, convenience and loyalty integration (Choi *et al.* 2020: 678; Mortimer, Fazal e Hasan and Andrews, 2016: 135).

Despite their dominance, barriers to card adoption persist in rural and peri-urban areas, where banking infrastructure and digital literacy are limited (Mpinganjira 2021: 171). In these areas, alternative payment solutions, such as mobile money and digital wallets, play a critical role in financial inclusion. To broaden adoption, retailers and financial institutions must expand digital infrastructure, educate consumers on payment security and enhance incentives for card usage. Cashback rewards, exclusive discounts and simplified checkout processes can encourage adoption. Strengthening awareness of fraud protection measures will also boost trust and usage. By addressing these challenges, South African retailers can sustain consumer confidence in digital transactions, aligning with global payment trends while supporting the growth of the digital economy.

9.3.4.3 POST-PURCHASE

The post-purchase phase is crucial in consumer decision-making, as it determines satisfaction or dissatisfaction, shaping loyalty, word of mouth recommendations and repeat purchases. If expectations are met or exceeded, consumers often engage in positive behaviours such as product endorsements, referrals and favourable reviews. Conversely, dissatisfaction can lead to complaints, negative reviews, or switching to competitors. This section examines how satisfaction

and dissatisfaction influence consumer behaviour, affecting brand relationships and long-term engagement in the marketplace.

9.3.4.3.1 Satisfaction

Satisfaction in the post-purchase phase reflects how well a product or service meets consumer expectations, fostering brand loyalty and trust. Satisfied consumers engage in advocacy behaviours, such as sharing product photos online, recommending purchases to friends and family, endorsing retailers, posting reviews on social media and making repeat purchases. These actions highlight the critical role of consumer satisfaction in driving long-term brand engagement and positive word-of-mouth influence.

i. After I purchase a smartphone, I take a photo and post it online.

The findings reveal low engagement in posting grocery purchases online, with a mean score of 3.07, a high standard deviation of 2.100 and a significant Z-value of -8.374 ($P < .001$) (Table 8.6b). This suggests South African consumers rarely share grocery purchases on social media, as groceries are seen as everyday necessities rather than status-enhancing or aspirational purchases, such as smartphones.

The utilitarian nature of grocery shopping explains this limited social engagement. Unlike fashion or electronics, groceries lack symbolic meaning or identity expression, reducing their likelihood of being featured in user-generated content (Mortimer, Fazal e Hasan and Andrews 2016: 136). Mpinganjira (2021: 168) further highlights that South African consumers prioritise social sharing for luxury items and experiences, reinforcing the role of social validation in digital spaces.

However, global retailers have successfully encouraged grocery-related content by shifting focus from purchases to storytelling—highlighting meal preparation, sustainability and health-conscious choices (Choi *et al.* 2020: 676). This suggests that engagement could increase if emotional or lifestyle connections are created.

Retailers should reposition grocery purchases to boost engagement as part of a broader lifestyle narrative. Strategies include incentivising social sharing through loyalty rewards, contests, meal-prep challenges and highlighting ethical practices like supporting local farmers or reducing food waste. By integrating social sharing into consumer lifestyles, retailers can enhance their digital

presence, strengthen brand loyalty and foster deeper engagement in South Africa's evolving omnichannel market.

ii. Advise friends, family and colleagues to purchase the same product I bought.

The findings highlight a strong preference for recommending smartphones (mean = 5.21, SD = 1.731, $Z = -11.416$, $P < .001$) (Table 8.6a) and groceries (mean = 5.18, SD = 1.884, $Z = -10.367$, $P < .001$) (Table 8.6b) to friends, family and colleagues. This underscores the influential role of word of mouth (WOM) in consumer decision-making across both high- and low-involvement purchases.

Due to the financial investment and complexity of smartphone purchases, WOM is crucial. Consumers trust peer recommendations over advertisements, relying on others' experiences to validate product reliability and value (Bazi, Hajli, Hajli, Shanmugam and Lin 2020: 458). Given the high stakes of smartphone purchases, WOM is a trusted source for navigating product options and features.

WOM plays a different but equally significant role in groceries, focusing on product quality, pricing and promotions (Mortimer, Fazal e Hasan and Andrews 2016: 137). In South Africa, cultural norms encourage sharing shopping advice, particularly regarding affordable retailers, fresh produce and locally sourced items. WOM referrals are especially relevant in rural and semi-urban areas, where limited retail access makes peer recommendations essential in discovering new products and promotions. WOM also helps build consumer trust in new products and retailers, shaping shopping behaviours across economic segments. The reliance on peer recommendations reflects consumers' need for validation and reassurance, particularly in a diverse retail environment.

Retailers can leverage WOM by fostering consumer advocacy through referral programmes, loyalty incentives and social media engagement. Encouraging customer reviews, influencer collaborations and interactive online discussions can enhance brand credibility and trust. Smartphone retailers can benefit from peer-review platforms, influencer testimonials and interactive comparison tools, while grocery retailers can engage consumers through recipe-sharing initiatives, seasonal discounts and community-driven campaigns.

Overall, WOM remains a powerful driver of consumer behaviour in South Africa, influencing aspirational and routine purchases. Retailers that align marketing strategies with consumer trust-

building efforts and encourage active WOM engagement will strengthen brand loyalty, enhance customer satisfaction and drive long-term growth in South Africa's evolving retail landscape.

iii. Recommend friends, family and colleagues to the preferred retailer

The findings highlight a strong preference for recommending smartphone retailers (mean = 5.85, SD = 1.373, $Z = -15.531$, $P < .001$) (Table 8.6a) and grocery retailers (mean = 5.60, SD = 1.575, $Z = -13.883$, $P < .001$) (Table 8.6b). This underscores the importance of trust, reliability and satisfaction in retailer selection.

For smartphones, consumers prioritise reputable retailers known for excellent customer service, competitive pricing and strong after-sales support. Recommending a retailer reflects confidence in its ability to provide authentic products, secure transactions and reliable delivery (Mpinganjira 2021: 172). Given the high financial investment in smartphones, retailer trust is essential in mitigating risk and ensuring purchase satisfaction (Bazi, Hajli, Hajli, Shanmagum and Lin 2020: 391).

Recommendations for groceries focus on affordability, freshness and convenience. Positive shopping experiences—particularly regarding hygiene, promotions and product quality—drive retailer endorsements (Mortimer, Fazal e Hasan and Andrews 2016: 135). WOM recommendations are critical in guiding purchasing decisions in rural and semi-urban areas, where access to diverse retailers is limited (Huang and Oppewal 2006: 346).

The role of WOM in retailer selection is deeply embedded in South African consumer culture, where personal networks and shared experiences influence trust and decision-making. Retailers consistently delivering value-driven experiences, transparent pricing and responsive customer service foster strong consumer advocacy and loyalty.

To leverage this behaviour retailers should enhance customer engagement through loyalty programmes, referral incentives and social media interactions. Actively managing the brand's reputation, promptly addressing enquiries, offering personalised recommendations and ensuring seamless service—can further strengthen consumer trust and positive WOM marketing.

Retailers prioritising consistency, transparency and customer-centric operations will build long-term loyalty and maintain a competitive edge in South Africa's evolving omnichannel landscape.

iv. Post reviews of the product I purchased on social media networking sites.

The findings indicate a moderate preference for posting smartphone reviews on social media (mean = 4.61, SD = 2.029, $Z = -5.865$, $P < .001$) (Table 8.6a), highlighting the role of consumer-generated content in shaping purchase decisions. In South Africa, consumers share reviews to inform others, validate experiences and express satisfaction or concerns, particularly for high-value purchases. Younger, tech-savvy users are more inclined to post, especially when they have strong opinions on product quality or service experiences. However, barriers such as privacy concerns, low confidence in writing reviews, or doubts about impact limit broader participation.

Social media review engagement for groceries is significantly lower (mean = 4.01, SD = 2.205, $Z = 0.064$, $P = .949$) (Table 8.6b), reflecting the routine, low-involvement nature of grocery shopping. Unlike smartphones, groceries lack emotional significance, making consumers less likely to share detailed feedback. Social media reviews primarily drive trust and purchase decisions for high-involvement products, as noted by PowerReviews (2016). Research from PowerReviews (2016) shows that 86% of consumers rely on reviews before purchasing high-value items. Given smartphones' complex features and high financial stakes, peer reviews help reduce risk, verify retailer credibility and guide decision-making.

Product types and purchase involvement significantly influence review behaviour. Marketing Sherpa (2015) notes that Gen Y consumers typically share feedback on unique shopping experiences rather than routine transactions like groceries. Additionally, social media penetration disparities between urban and rural areas further limit grocery-related reviews in South Africa.

The contrast between smartphones and groceries underscores how purchase involvement, value and emotional connection shape digital engagement. While smartphone reviews influence brand reputation and trust, groceries remain functional necessities with fewer motivations for social sharing.

Retailers can enhance engagement by encouraging satisfied customers to leave reviews, particularly for high-involvement products. Offering discounts, loyalty points, or exclusive deals can boost review participation. Direct feedback channels, such as loyalty apps, SMS surveys, or in-store prompts, are more effective for groceries. By aligning marketing strategies with consumer behaviour, retailers can leverage reviews to strengthen brand credibility, enhance trust and foster long-term engagement in South Africa's evolving omnichannel landscape.

v. Make a repeat purchase of the product.

The findings reveal a moderate inclination toward repeat smartphone purchases (mean = 4.27, SD = 1.943, $Z = -2.827$, $P < .001$) (Table 8.6a), reflecting brand loyalty, technological advancements and upgrade needs. Given the high-value, infrequent nature of smartphone purchases, factors such as device lifespan, affordability and financing options shape consumer decisions. Consumers often switch brands based on new features, promotional deals and after-sales support, aligning with Solomon *et al.* (2016: 220) and Mpinganjira (2021: 171).

In contrast, grocery repeat purchases are significantly higher (mean = 6.04, SD = 1.285, $Z = -16.643$, $P < .001$) (Table 8.6b), reflecting their routine, necessity-driven nature. Consumers develop strong brand and retailer preferences based on quality, pricing and convenience, with loyalty programmes from Pick n' Pay and Woolworths further reinforcing repeat buying (Mortimer *et al.* 2016: 136). Cultural preferences for familiar, locally sourced products also play a role in sustaining habitual grocery purchases.

These contrasting results highlight the difference between high-value, infrequent purchases and routine, necessity-driven buying. Smartphone purchases are influenced by innovation, brand reputation and financing, whereas groceries are habitual, driven by availability and affordability.

Retailers can enhance repeat purchases by aligning strategies with consumer behaviours. Offering trade-in programmes, extended warranties and financing options can boost smartphone loyalty. Strong after-sales support, exclusive discounts for returning customers and personalised recommendations can encourage repurchases. Maintaining consistent quality, having competitive pricing and leveraging loyalty programmes will sustain long-term trust in groceries. Strategies like subscription-based deliveries, exclusive member discounts and targeted promotions can further reinforce repeat buying. By adapting to consumer purchase patterns, retailers can enhance satisfaction, strengthen loyalty and drive long-term engagement in South Africa's evolving retail landscape.

9.3.4.3.2 Dissatisfaction

Dissatisfaction occurs when a product or service fails to meet expectations, leading consumers to seek resolutions. This section explores key response behaviours, including contacting the retailer using a phone or email before returning a product, returning an in-store purchase to a physical store, bringing an online purchase to a store and arranging retailer pickup from home or office. These actions reflect consumer expectations for efficient, hassle-free resolution processes, emphasising the need for convenient return policies and responsive customer service.

i. Contact the retailer telephonically before returning the product.

The findings indicate a strong preference for contacting retailers telephonically before returning smartphones (mean = 5.21, SD = 1.956, $Z = -10.513$, $P < .001$) (Table 8.7a), underscoring the importance of direct communication for high-value purchases. In South Africa, consumers often perceive digital support as impersonal or inefficient, making verbal interaction a preferred method for resolving warranty claims, technical faults, or incomplete deliveries (Mpinganjira 2021: 172). Speaking directly with a representative provides reassurance and speeds up dispute resolution.

For groceries, telephonic contact remains relevant but slightly lower in preference (mean = 5.00, SD = 2.202, $Z = -4.627$, $P < .001$) (Table 8.7b). Consumers often use calls for urgent issues like incorrect deliveries or damaged packaging, particularly for perishable goods. However, the lower preference compared to smartphones suggests that routine grocery issues may be resolved through in-store visits or digital support channels such as mobile apps and chatbots.

These findings align with Solomon *et al.* (2016: 230), who highlight that personalised interactions enhance consumer trust, particularly in complex, high-involvement purchases. Huang and Oppewal (2006: 347) note that timely issue resolution is crucial for perishable goods, as concerns over freshness and order accuracy require immediate attention.

Retailers should strengthen telephonic support while integrating digital alternatives for efficiency. For smartphones, trained service agents should handle technical enquiries and return policies. Expanding instant chat, mobile apps and AI-driven support for groceries can improve response times while maintaining accessibility. A seamless, responsive support system will enhance consumer confidence and satisfaction across product categories.

ii. Communicate with the retailer through email before returning the product.

The findings indicate a moderate preference for email communication before returning smartphones (mean = 5.13, SD = 1.850, $Z = -10.338$, $P < .001$) (Table 8.7a), highlighting its role as a formal, traceable channel for high-value returns. In South Africa, email allows consumers to document warranty claims, defective products, or delivery inaccuracies, ensuring transparency and accountability (Mpinganjira 2021: 173). Retailers can request supporting documentation, such as receipts or photographs, streamlining the resolution process.

For groceries, the email preference is lower (mean = 5.00, SD = 2.168, $Z = -4.191$, $P < .001$) (Table 8.7b), reflecting the time-sensitive nature of grocery returns. Consumers often prefer immediate solutions through the phone or in-store visits, particularly for perishable items (Huang and Oppewal 2006: 348). However, email remains relevant for non-urgent concerns requiring documentation, such as refund requests for damaged or incorrect items.

These findings align with Solomon *et al.* (2016: 231), who highlight that email is effective for structured problem resolution, particularly for technical or high-value purchases like smartphones. In contrast, grocery-related concerns often require real-time assistance, making telephonic or in-person interactions more practical.

Retailers can enhance email support by ensuring prompt responses, integrating email with live chat and telephonic assistance and using automated systems to acknowledge and track customer queries. This omnichannel approach will improve consumer trust and satisfaction, particularly in South Africa's evolving retail landscape.

iii. Visit the physical store to return the product purchased in-store.

The findings highlight a strong preference for in-store returns of smartphones purchased in-store (mean = 6.19, SD = 1.248, $Z = -16.986$, $P < .001$) (Table 8.7a). Consumers favour this method due to its immediacy, direct interaction with staff and the ability to resolve technical issues or explore alternative products on-site. In South Africa, logistical delays and concerns over online return processing further reinforce trust in physical store returns (Mpinganjira 2021: 170).

Similarly, grocery returns to the same store are highly preferred (mean = 6.19, SD = 1.259, $Z = -17.030$, $P < .001$) (Table 8.7b). The ability to promptly exchange perishable goods ensures product quality and minimises inconvenience. South African consumers view supermarkets as

accessible retail hubs, making in-store returns a seamless part of their shopping routine (Huang and Oppewal 2006: 348). These preferences align with Solomon *et al.* (2016: 240), who emphasise that face-to-face interactions enhance trust in complex product returns, particularly for high-value items like smartphones. Additionally, the ability to resolve issues immediately reduces uncertainty and strengthens consumer confidence in retailer service standards.

While in-store returns remain dominant, retailers should improve online return processes to enhance convenience and accessibility. Streamlining refund policies, reducing processing delays and integrating digital support with in-store solutions can encourage greater adoption of omnichannel returns. For smartphones, retailers can enhance in-store returns by offering on-the-spot repairs or replacements, while grocery retailers should ensure swift refunds or replacements for faulty items. Optimising return services across channels will strengthen consumer trust, enhance service efficiency and improve long-term loyalty.

iv. I returned the product to a physical store despite purchasing it online

The findings indicate a moderate preference for returning online-purchased smartphones to a physical store (mean = 4.70, SD = 2.025, $Z = -6.977$, $P < .001$) (Table 8.7a). This reflects consumers' need for convenience, immediacy and security in resolving post-purchase issues. In-store returns offer direct interaction with staff, allowing for product inspection, faster refunds and technical support, which fosters trust in the return process.

Logistical challenges in South Africa, such as courier delays, damage risks and lengthy processing times, further reinforce this preference. Consumers prefer in-store resolutions to avoid uncertainties in digital return mechanisms, ensuring quicker exchanges or repairs.

For groceries, in-store returns after online purchases are significantly preferred (mean = 6.30, SD = 2.008, $Z = -8.940$, $P < .001$) (Table 8.7b). Given the perishable nature of groceries, consumers prioritise immediate replacements or refunds for damaged or incorrect items. Face-to-face interactions allow quick resolutions, ensuring household routines remain uninterrupted. These preferences align with Solomon *et al.* (2016: 240), who highlight the value of face-to-face engagement in handling post-purchase concerns for high-involvement products like smartphones. Mpinganjira (2021: 172) notes that logistical barriers, such as unreliable courier services and coordination challenges, discourage online returns in South Africa. Similarly, Huang and Oppewal (2006: 348) stress that grocery returns often require immediacy, particularly for perishable goods.

The preference for in-store returns highlights the need for South African retailers to refine omnichannel return policies. Integrating in-store diagnostic services, streamlined exchanges and repair options can enhance consumer satisfaction with smartphones. Retailers should ensure efficient return procedures, transparent policies and rapid product replacements for groceries. Optimising these return processes will strengthen consumer trust, improve post-purchase experiences and drive long-term customer loyalty.

vi. If I purchase the product online, I contact the retailer to pick it up from home or the office for return.

The findings indicate a moderate preference for retailer-facilitated pickup services for smartphone returns (mean = 4.61, SD = 2.114, $Z = -5.706$, $P < .001$) (Table 8.7a). This reflects a growing demand for convenience in South Africa's online retail sector, as pickup services eliminate the need for in-store visits, benefiting consumers with time constraints or transportation challenges. However, concerns over service reliability, courier inefficiencies and product safety during transit limit widespread adoption (Mpinganjira 2021: 172). Consumers may prefer in-store returns for greater security and immediate issue resolution.

For groceries, the preference for pickup services is slightly higher (mean = 4.84, SD = 2.176, $Z = -3.482$, $P < .001$) (Table 8.7b), especially for bulky or perishable items. This method reduces logistical burdens but is hindered by concerns over delays, product condition disputes and refund processing inefficiencies (Huang and Oppewal 2006: 348). The time-sensitive nature of grocery returns makes service reliability critical in shaping consumer trust.

These findings align with Brynjolfsson, Hu and Rahman (2013: 25), who note the rising demand for flexible return options in omnichannel retail. While pickup services cater to urban consumers seeking convenience, logistical inefficiencies in South Africa's courier network pose adoption challenges (Mpinganjira 2021: 172). Addressing these issues is essential for driving consumer confidence and trust in at-home return services.

To optimise pickup services, retailers must enhance operational efficiency, implement real-time tracking and maintain clear communication throughout the return process. For smartphones, ensuring secure handling and prompt return processing will build confidence. Fast pickup schedules, efficient refunds and proper handling of perishable goods are critical for groceries. By

resolving logistical barriers and reinforcing trust, retailers can improve customer satisfaction and increase home pickup return services adoption in South Africa's evolving retail market.

9.3.4.4 RISK

This section explores the risks associated with omnichannel shopping, focusing on financial, logistical, time-loss and delivery concerns. It examines how consumers navigate these risks when purchasing high- and low-involvement products, highlighting differences in risk tolerance and mitigation strategies. For high-involvement purchases, concerns around payment security, fraud and return policies are more pronounced, while low-involvement products are associated with risks related to product quality, delivery delays and substitutions. The discussion provides insights into how retailers can enhance trust, security and operational efficiency to minimise perceived risks and improve the omnichannel shopping experience.

9.3.4.4.1 Financial Risk

This section examines key financial concerns in online shopping, including cost savings, economic security, price accuracy and data protection. It also explores the impact of refund policies on consumer confidence. In South Africa, where economic fluctuations and cybersecurity threats influence purchasing behaviours, these factors shape trust and satisfaction. Ensuring transparent pricing, secure payment processes and robust refund policies is essential for fostering consumer confidence in the digital retail landscape.

i. Online shopping saves me money

The findings highlight a strong consumer belief in the financial advantages of online shopping, with a Z-value of -12.253 ($P < 0.001$), a mean score of 5.26 and a standard deviation of 1.656 (Table 7.13). Online shopping is perceived as cost-effective due to discounts, promotions and competitive pricing across multiple platforms. Price comparison tools further enhance savings by allowing consumers to identify the best deals effortlessly.

Unlike physical retail, where direct price comparisons are limited, online shopping eliminates ancillary costs such as transportation and commuting time, reinforcing its appeal, particularly for cost-conscious consumers. Growing confidence in online shopping's economic benefits reflects a broader shift in purchasing behaviour, with digital commerce increasingly recognised as a

strategic, value-driven option. These findings align with Hult *et al.* (2019), who highlight online shopping's ability to provide discounted pricing and exclusive deals. Zhuang *et al.* (2018) further emphasise that online platforms reduce indirect costs, enhancing financial efficiency. The pre-purchase phase plays a crucial role in this assessment, as online platforms facilitate transparency by enabling consumers to evaluate options and maximise savings.

For South African retailers, maintaining competitive pricing, offering targeted promotions and integrating loyalty incentives are essential strategies to retain consumer engagement. Enhancing price comparison tools, ensuring transparent discounts and building trust in digital pricing mechanisms will further solidify online shopping's reputation as the superior financial choice. Businesses that effectively communicate cost-saving benefits and optimise the digital shopping experience will be best positioned to capitalise on shifting consumer behaviours.

ii. Financial Risk and Online Security

The findings indicate strong consumer confidence in online payment security, with a Z-value of -13.307 ($P < 0.001$), a mean score of 5.31 and a standard deviation of 1.462 (Table 7.13). Most respondents trust digital payment processes, reflecting positive perceptions of e-commerce security in South Africa.

Advancements in encryption, two-factor authentication (2FA) and fraud detection systems have significantly reduced perceived financial risks, increasing consumer willingness to shop online. Familiarity with digital platforms and proactive cybersecurity measures further strengthens trust, particularly in urban areas where e-commerce adoption is widespread. Secure mobile payment solutions, such as SnapScan and Zapper, alongside banking security improvements, have reinforced confidence in digital transactions.

Historically, financial risk in online shopping has been a significant concern. Earlier studies (Horton, 1976; Derbaix, 1983: 20; Sweeney *et al.* 1999) highlighted fears of credit card fraud and unauthorised transactions. Maignan and Lukas (1997) identified consumer reluctance to share payment details as a barrier to e-commerce growth. However, this study suggests a shift in perception, reflecting the impact of enhanced security measures, regulatory compliance (PCI DSS, CPA) and consumer education.

Despite this progress, some consumer segments—such as older adults and rural shoppers—remain cautious due to cybercrime concerns and limited technological proficiency (Caswell 2000).

Media reports on fraud continue to shape financial risk perceptions, indicating that trust in online transactions is not universal. As digital commerce expands, maintaining consumer confidence will be crucial. Retailers and financial institutions must prioritise security by strengthening fraud prevention systems, enhancing transparency in security policies and educating consumers on safe payment practices. Visible security indicators, secure checkout options and responsive customer support will reinforce trust. South Africa's omnichannel retail landscape must balance security and convenience to enhance the shopping experience while mitigating financial risks. Continued investment in cybersecurity and trust-building initiatives will shape the future of secure digital transactions.

iii. Accuracy of Price Calculations

The findings indicate strong consumer confidence in online price calculations, with a Z-value of -14.838 ($P < .001$), a mean score of 5.58 and a standard deviation of 1.451 (Table 7.13). South African consumers perceive e-commerce pricing systems as highly reliable, reinforcing the effectiveness of digital platforms in maintaining transparency and accuracy at checkout.

This trust is driven by advanced e-commerce technologies that ensure real-time price updates, automated discounts and precise tax calculations. Transparent breakdowns of costs, including VAT and delivery charges, further enhance consumer confidence. Transparent pricing structures are crucial for informed budgeting and financial planning in a price-sensitive market like South Africa. Interestingly, these findings contrast with global studies, such as Martynenko (2023), which found that 95% of major online retailers experience checkout errors. South African retailers may have fewer operational complexities, allowing for better oversight and prioritising pricing transparency to accelerate digital adoption.

The literature supports the role of price accuracy in fostering trust. Hult *et al.* (2019) highlight that error-free pricing encourages transaction completion, while Zhuang *et al.* (2018) emphasise its importance in eliminating hidden costs. Given South Africa's economic constraints and high price sensitivity, ensuring pricing consistency directly influences consumer confidence and repeat purchases.

To maintain trust, South African retailers must continue leveraging AI-driven pricing validation tools and real-time error detection. Investing in automated accuracy checks and clear communication about pricing structures will further enhance transparency. As the e-commerce

sector grows, businesses that prioritise error-free transactions will strengthen consumer trust, differentiate themselves in the market and sustain long-term success.

iv. Financial Information Security

The findings indicate strong consumer confidence in online financial security, with a Z-value of -12.407 ($P < 0.001$), a mean score of 5.22 and a standard deviation of 1.549 (Table 7.13). This suggests South African shoppers trust digital security measures to protect their financial data.

This confidence is driven by robust security protocols, including two-factor authentication (2FA), encrypted connections (HTTPS) and real-time transaction notifications. Additionally, biometric authentication in mobile banking apps has enhanced security perceptions, giving users greater control over their financial information. South African retailers and financial institutions have also strengthened consumer trust by complying with data protection regulations such as POPIA and GDPR, reinforcing transparency in handling sensitive information.

These findings contrast with earlier research, highlighting widespread concerns about online fraud and data privacy (NTIA, 2021; Pew Research Center, 2019). Previously limited familiarity with digital payments and weak regulatory oversight contributed to hesitancy in sharing financial information. However, stricter security frameworks and improved consumer education have transformed trust levels in South Africa's e-commerce sector. To maintain and strengthen this trust, retailers must continue implementing multi-layered security systems, including AI-driven fraud detection and enhanced authentication measures. Transparent communication about data protection policies and proactive consumer education on safe online practices will be essential. Since perceived security risks can lead to transaction abandonment, ensuring a seamless and secure checkout experience will be critical in sustaining consumer confidence and fostering digital commerce growth.

v. Refunds and Post-Purchase Confidence

The findings indicate a moderate to high level of confidence in obtaining refunds for online purchases, with a mean score of 5.72, a standard deviation of 1.348, a Z-value of -15.497 and a P-value of $< .001$ (Table 7.13). This suggests that South African consumers perceive online refund policies as reliable, reflecting improvements in post-purchase support and consumer rights awareness.

South African e-commerce platforms have enhanced refund processes by implementing clear return policies, prepaid return labels and expedited processing times. These measures reduce financial risks, making online shopping more attractive. Additionally, the Consumer Protection Act (CPA) has reinforced consumer confidence by mandating fair refund policies, while competition among retailers has incentivised further improvements. These findings contrast with Ndlovu (2023), who previously identified refund challenges, including delays and unclear return policies. Earlier global studies also highlighted consumer distrust in digital transactions due to inefficient refund mechanisms (Hult *et al.* 2019). However, platforms like Takealot and Superbalist have since introduced structured refund systems, aligning with international best practices to enhance consumer trust.

While progress has been made, ongoing improvements are essential. Retailers can further refine refund processes through automated approvals, real-time tracking and AI-driven customer support. Educating consumers on refund rights using FAQs, live chat and instructional guides will reduce uncertainty. Businesses prioritising seamless refund experiences will strengthen customer satisfaction, encourage repeat purchases and drive long-term loyalty in South Africa's evolving digital retail landscape.

9.3.4.4.2 Time-loss risk

This section examines time-related risks in online shopping, including order processing, information searching and post-purchase procedures. While consumers strongly believe in the time-saving benefits of e-commerce, certain inefficiencies—such as delayed processing, difficulty finding product information and slow return procedures—can undermine these advantages. Addressing these concerns is crucial for maintaining trust and enhancing the shopping experience.

i. Time-Saving Benefits of Online Shopping

The findings reveal strong confidence in online shopping's time-saving benefits, with a mean score of 6.32, a standard deviation of 1.081 and a highly significant Z-value of -17.616 ($P < 0.001$) (Table 7.14). Consumers value the convenience of avoiding physical travel, in-store browsing and long checkout queues, particularly in South Africa, where urban congestion and limited rural retail access enhance the appeal of digital commerce.

User-friendly platforms with advanced search and filtering tools further reinforce these time efficiencies. Order processing is also perceived as highly efficient, with a mean score of 5.83, a standard deviation of 1.334 and a significant Z-value of -16.020 ($P < 0.001$) (Table 7.14). Automated systems, real-time tracking and rapid customer service responses contribute to this trust, while same-day and next-day delivery options offered by retailers like Takealot further strengthen consumer confidence.

These findings align with Forsythe *et al.* (2006) and Hanjun *et al.* (2004), who highlight time savings as a key motivator for online shopping. Efficient order processing and seamless checkout experiences significantly enhance consumer satisfaction (Hult *et al.* 2019). However, unlike Almousa (2011: 28), who identified time risks in global e-commerce due to shipping delays, South Africa's reliance on domestic retailers mitigates these concerns.

Online retailers must optimise website navigation, AI-driven recommendations and seamless transactions to maintain consumer trust. Enhancing logistics infrastructure, expanding same-day delivery and ensuring transparent order tracking are crucial. As South Africa's e-commerce market grows, businesses prioritising efficiency and proactive communication will differentiate themselves, strengthening consumer loyalty in an increasingly competitive digital landscape.

ii. Efficiency in Online Information Searching

The findings reveal strong confidence in online shopping's time-saving benefits, with a mean score of 6.32, a standard deviation of 1.081 and a highly significant Z-value of -17.616 ($P < 0.001$) (Table 7.14). Consumers value the convenience of avoiding physical travel, in-store browsing and long checkout queues, particularly in South Africa, where urban congestion and limited rural retail access enhance the appeal of digital commerce.

User-friendly platforms with advanced search and filtering tools further reinforce these time efficiencies. Order processing is also perceived as highly efficient, with a mean score of 5.83, a standard deviation of 1.334 and a significant Z-value of -16.020 ($P < 0.001$) (Table 7.14). Automated systems, real-time tracking and rapid customer service responses contribute to this trust, while same-day and next-day delivery options offered by retailers like Takealot further strengthen consumer confidence.

These findings align with Forsythe *et al.* (2006) and Hanjun *et al.* (2004), who highlight time savings as a key motivator for online shopping. Efficient order processing and seamless checkout

experiences significantly enhance consumer satisfaction (Hult *et al.* 2019). However, unlike Almousa (2011: 28), who identified time risks in global e-commerce due to shipping delays, South Africa's reliance on domestic retailers mitigates these concerns.

Online retailers must optimise website navigation, AI-driven recommendations and seamless transactions to maintain consumer trust. Enhancing logistics infrastructure, expanding same-day delivery and ensuring transparent order tracking will be crucial. As South Africa's e-commerce market grows, businesses prioritising efficiency and proactive communication will differentiate themselves, strengthening consumer loyalty in an increasingly competitive digital landscape.

iii. Timeliness of Returns, Exchanges and Refunds

The findings indicate moderate consumer confidence in online post-purchase processes, with a mean score of 5.18, a standard deviation of 1.643 and a significant Z-value of -11.787 ($P < 0.001$) (Table 7.14). While consumers trust online platforms for returns, exchanges and refunds, concerns remain over delays and inefficiencies, mainly due to unreliable courier services, limited return collection points in rural areas and inconsistent refund processing times.

Confidence in the pre-purchase and purchase phases remains strong, yet lower scores for post-purchase processes highlight persistent consumer frustrations. Urban consumers, benefiting from faster logistics, report higher satisfaction, whereas rural shoppers face delays and uncertainty due to infrastructure constraints. These findings align with Forsythe *et al.* (2006) and Mpinganjira (2021: 173), who identify return delays, inconsistent policies and poor communication as barriers to consumer trust in e-commerce. While leading platforms like Takealot and Superbalist have improved refund processes, regional logistical disparities still pose significant challenges.

Enhancing post-purchase efficiency is critical for sustaining consumer trust in South African e-commerce. Retailers must streamline return logistics, expand collection points and implement real-time refund tracking to improve transparency. Automated refund processing, clear return policies and proactive customer communication will further align consumer expectations with service delivery. Addressing urban-rural disparities through last-mile return solutions and stronger logistics partnerships will be essential in improving the overall e-commerce experience. Retailers prioritising these improvements will strengthen consumer confidence, encourage repeat purchases and maintain a competitive edge in South Africa's evolving digital retail market.

9.3.4.4.3 Transaction risk

This section explores consumer trust in digital payment security, focusing on banking details, mobile app transactions, transaction accuracy, credential protection and antivirus usage. The findings highlight consumer confidence in security measures while addressing South African retail fraud and data protection concerns.

Advancements in encryption, two-factor authentication (2FA) and fraud detection systems have strengthened consumer trust in online transactions. However, concerns about cyber threats and data breaches persist, particularly among less tech-savvy users. The study examines how transaction transparency, secure banking integrations and digital literacy influence consumer confidence in e-commerce security.

Retailers and financial institutions must continue enhancing cybersecurity frameworks, ensuring robust fraud prevention and educating consumers on safe digital practices. Strengthening these measures will maintain consumer trust and foster growth in South Africa's digital commerce sector.

i. Perception of Security in Banking Details

The findings indicate moderate consumer confidence in entering banking details online, with a Z-value of -9.080, a P-value of <.001, a mean score of 4.82 and a standard deviation of 1.664 (Table 7.15). While secure payment technologies such as encryption, two-factor authentication and tokenisation have improved trust, some consumers remain cautious due to cybercrime, fraud and data privacy concerns.

The results align with Rahaman *et al.* (2020) and Solat (2017), who highlight the role of Payment Card Industry Data Security Standard (PCI DSS) compliance, encryption protocols and trusted payment processors in strengthening security. However, Tsai and Yeh (2010) note that concerns about phishing scams and data breaches persist, particularly among consumers with limited e-commerce exposure.

Building trust in online payment security requires enhanced consumer education on secure transactions, broader adoption of digital wallets, transparent data protection policies and real-time fraud detection systems. Strengthening these measures will be key to increasing consumer participation in South Africa's digital economy.

ii. Security of Banking Details on Mobile Apps

The findings indicate strong consumer confidence in the security of banking details when using mobile shopping apps, with a Z-value of -11.279, a P-value of <.001, a mean score of 5.09 and a standard deviation of 1.610 (Table 7.15). This trust is mainly due to advanced security features such as encryption, biometric authentication and two-factor authentication, which provide tangible assurances in mobile transactions. The convenience of mobile commerce, combined with stringent security measures, further reinforces consumer confidence.

These results align with Beldad, De Jong and Steehouder (2010), who highlight encryption and multi-factor authentication as key drivers of trust in digital security. However, research by Tanadi, Samadi and Gharleghi (2015) and Featherman and Pavlou (2003) suggests ongoing concerns about data privacy and cyber threats. In South Africa, reports of cyberattacks and digital fraud, particularly among consumers with lower digital literacy, contribute to persistent apprehension.

To enhance trust, retailers and financial institutions should strengthen consumer education on secure mobile transactions, offer multiple secure payment options (such as mobile wallets and tokenisation) and ensure transparency in data protection policies. Prioritising these efforts will help sustain confidence in mobile commerce, fostering a secure and inclusive digital shopping environment in South Africa.

iii. Accuracy of Transactions and Records

The findings indicate strong consumer confidence in the accuracy of online transactions, with a Z-value of -14.570, a P-value of <.001, a mean score of 5.49 and a standard deviation of 1.405 (Table 7.15). This trust is driven by real-time transaction updates, automated reconciliation systems and secure payment gateways, allowing consumers to verify payments and maintain financial records effortlessly. Features such as email confirmations and digital receipts further reinforce confidence in transaction reliability.

These results align with Gefen, Karahanna and Straub (2003), who highlight perceived reliability as a critical factor in digital trust. Tapscott and Tapscott (2016) also suggest that emerging technologies like blockchain could enhance transparency in financial transactions. However, Featherman and Pavlou (2003) and Kesharwani and Singh Bisht (2012) caution that system failures, technical glitches and fraud reports can undermine trust among consumers engaging with smaller retailers with limited digital infrastructure. To sustain confidence, South African

retailers must continue investing in error-detection systems, robust security protocols and proactive customer support to address discrepancies promptly. Educating consumers on secure digital transactions and integrating emerging technologies will strengthen trust. As transaction accuracy plays a crucial role in post-purchase confidence, ensuring seamless verification processes will maintain consumer loyalty and a competitive edge in South Africa's growing e-commerce market.

iv. Security of Credentials

The findings indicate moderate confidence in the security of providing credentials (email and password) on online shopping platforms, with a Z-value of -9.158, a P-value of <.001, a mean score of 4.89 and a standard deviation of 1.777 (Table 7.15). While encryption, SSL certificates and two-factor authentication enhance security, concerns about data breaches and fraud persist in South Africa.

These results align with Beldad, De Jong and Steehouder (2010), who highlight the role of security measures in fostering trust. Kim, Ferrin and Rao (2008) also emphasise that perceived security significantly impacts consumers' willingness to share credentials. However, studies by Kukar-Kinney and Close (2010) and Malhotra, Kim and Agarwal (2004) suggest privacy concerns remain a barrier to engagement, particularly in regions with heightened cybersecurity risks.

Since credential security influences the pre-purchase phase, hesitation at this stage can lead to abandoned registrations and lost sales. To enhance trust, South African retailers should ensure transparency in security policies, comply with data protection laws like POPIA and adopt user-friendly authentication measures such as biometric logins and fraud alerts. Strengthening these security initiatives will foster consumer confidence and drive long-term engagement in South Africa's e-commerce market.

v. Importance of antivirus software

The findings indicate a strong digital security awareness, with a Z-value of -13.448, a P-value of <.001, a mean score of 5.54 and a standard deviation of 1.708 (Table 7.15). Respondents widely acknowledge antivirus software as essential for online safety, likely due to increased cybersecurity awareness and the accessibility of free or bundled antivirus programmes in South Africa. Consumers who perceive their devices as secure are more inclined to shop online, from browsing to completing transactions.

These results align with Gordon and Loeb (2002), who highlight that cybersecurity investments reduce fraud risks and enhance trust in digital commerce. Tsai *et al.* (2011) further emphasise antivirus software's role in fostering confidence against cyber threats. However, Alotaibi and Toh (2017) and the Ponemon Institute (2020) caution that while antivirus programmes are effective, outdated software leaves devices vulnerable to emerging threats.

Installing antivirus software helps establish a secure online shopping environment as part of the pre-purchase phase. Consumers who are more confident in digital security are more likely to explore digital commerce platforms freely. To maintain trust, South African retailers and financial institutions must prioritise cybersecurity education, transparent security policies and regular software updates. Strengthening these measures will ensure sustained growth in South Africa's digital commerce sector while safeguarding consumers against evolving cyber risks.

9.3.4.4 Logistics risk

This section examines consumer confidence in online delivery systems, focusing on address accuracy, order fulfilment, product condition, timeliness and adherence to specifications. The findings reveal overall trust in delivery reliability while highlighting areas for improvement to better align with consumer expectations and reducing the perceived risks. Addressing these concerns will be crucial for enhancing customer satisfaction and strengthening the efficiency of South Africa's e-commerce logistics.

i. Accurate Delivery Addresses

The findings indicate strong consumer confidence in delivery accuracy, with a Z-value of -16.143, a P-value of <.001, a mean score of 5.88 and a standard deviation of 1.330 (Table 7.16). This trust is driven by technological advancements in South African e-commerce logistics, including real-time tracking, automated address verification and delivery confirmations. These innovations enhance transparency, minimise errors and keep consumers informed.

These results align with research by Zhou, Dai and Zhang (2007) and Hansen and Solgaard (2004), which highlight how logistics innovations improve trust in e-commerce. Expanding South African logistics networks and partnerships with international couriers further reinforces delivery reliability. However, challenges persist in rural areas, where infrastructure limitations may affect service consistency.

While earlier studies by Ariff *et al.* (2014) and Tanadi *et al.* (2015) identified delivery failures as barriers to trust, South African retailers have made notable improvements, particularly in urban areas. Investments in predictive logistics and expanded courier networks have significantly reduced delivery issues.

Delivery accuracy is critical in the post-purchase phase, influencing consumer satisfaction and retailer credibility. While urban logistics continues to advance, further efforts are needed to improve rural delivery services. Retailers can maintain trust by ensuring transparent communication, proactive issue resolution and continuous investment in efficient logistics systems.

ii. Order Fulfilment

The findings indicate strong consumer confidence in receiving the correct orders, with a Z-value of -15.737, a P-value of <.001, a mean score of 5.72 and a standard deviation of 1.364 (Table 7.16). This trust stems from improvements in South Africa's logistics networks, courier partnerships and the integration of tracking technologies and automated order management systems. These advancements have reduced errors, enhanced transparency and reassured consumers about order accuracy.

These results contrast with concerns Dan, Taihai and Ruiming (2007) raised regarding risks in third-party logistics, such as mis-deliveries and inventory errors. However, in South Africa, e-commerce platforms have mitigated these risks by collaborating with reliable logistics providers and prioritising delivery accuracy as a competitive advantage. While urban consumers benefit from faster and more consistent deliveries, rural shoppers may still face occasional challenges due to infrastructure limitations and less frequent delivery schedules.

As a critical component of the post-purchase phase, order accuracy directly impacts consumer satisfaction and retailer credibility. Reliable fulfilment strengthens trust, encourages repeat purchases and fosters positive word-of-mouth recommendations. To sustain high fulfilment reliability, retailers and logistics providers should continue investing in the following:

- Advanced tracking systems for real-time order visibility.
- Automated inventory management to minimise errors.
- Enhanced communication channels for timely delivery updates.
- Tailored logistics solutions for rural and underserved areas.

Addressing these aspects will ensure consistent service quality, reinforce consumer trust and drive long-term growth in South Africa's e-commerce sector.

iii. Product Condition

The findings show strong confidence in on-time deliveries, with a Z-value of -12.350, a P-value of <.001, a mean score of 5.21 and a standard deviation of 1.614 (Table 7.16). Consumers trust South African e-commerce platforms to meet delivery deadlines, driven by supply chain advancements such as predictive logistics, route optimisation and real-time tracking.

These results align with Forsythe *et al.* (2006), who highlight that delays erode trust and discourage future purchases. However, South African retailers have mitigated these risks by improving warehouse automation, refining logistical coordination and prioritising punctuality as a competitive advantage.

Despite progress, regional disparities remain. Urban areas with better infrastructure experience consistent delivery times, while rural consumers face occasional delays due to limited courier networks. The standard deviation suggests variability in consumer experiences, reinforcing the need for further logistical improvements.

iii. As post-purchase fulfilment directly impacts consumer retention, South African retailers should:

- Invest in last-mile delivery solutions to reduce delays in rural areas.
- Enhance tracking systems and transparency to manage expectations.
- Strengthen contingency planning for disruptions, ensuring seamless service.

By refining logistics efficiency, retailers can reinforce consumer confidence, improve reliability and drive long-term engagement in South Africa's e-commerce sector.

iv. Product Specifications

The findings indicate strong consumer confidence in order fulfilment accuracy, with a Z-value of -14.958, a P-value <.001, a mean score of 5.59 and a standard deviation of 1.453 (Table 7.16). This suggests that most respondents receive the exact products they ordered, reinforcing trust in South African retailers and logistics providers. Advances in real-time tracking, detailed product

descriptions and stringent quality checks contribute to this reliability by minimising discrepancies between ordered and delivered items.

These findings align with Chopra and Meindl (2019) and Brynjolfsson, Hu and Rahman (2013), who emphasise that precise product information and tracking mechanisms build consumer trust in e-commerce. However, the standard deviation indicates some variability in consumer experiences, suggesting occasional mismatches, such as incorrect variants or incomplete orders. Factors like third-party couriers, warehouse management inefficiencies and infrastructural disparities, particularly in rural areas, may contribute to these inconsistencies.

Retailers have addressed these challenges through enhanced labelling systems, digital catalogues and consumer feedback mechanisms, allowing swift resolution of discrepancies. The competitive e-commerce market further incentivises retailers to prioritise fulfilment accuracy, as reliable delivery strengthens brand loyalty and consumer trust.

Accurate fulfilment is a post-purchase consideration that directly influences satisfaction, repeat purchases and word-of-mouth recommendations. Deviations from order specifications can erode trust, making precision in delivery a strategic priority for online retailers.

To sustain confidence, South African retailers must continue investing in:

- AI-driven logistics and predictive analytics to enhance order accuracy.
- Proactive consumer communication, including real-time updates and automated quality checks.
- Responsive customer service to quickly resolve fulfilment errors.

By leveraging innovation and operational efficiency, retailers can maintain high consumer trust and remain competitive in South Africa's evolving omnichannel shopping landscape.

9.4 Summary

This chapter examined the findings within the context of existing literature, providing a deeper understanding of consumer behaviour in omnichannel retailing. It began by analysing respondents' demographic profiles to highlight consumer diversity and its influence on shopping preferences. The discussion then explored the role of AI in both in-store and online shopping, emphasising its impact on decision-making, engagement and the overall shopping experience.

The influence of social media was also analysed, revealing its role in shaping brand perception, product research and purchasing behaviour. Consumer risks were assessed, including financial, time-loss, logistics and delivery risks. Variations in risk perception were identified across product categories, particularly between high-involvement (smartphones) and low-involvement (groceries) purchases. Consumer engagement was further examined across the pre-purchase, purchase and post-purchase stages, illustrating distinct behavioural patterns influenced by product types.

Overall, the chapter highlighted the importance of trust, seamless service delivery and technological integration in enhancing consumer confidence in omnichannel retailing. These insights provide a more comprehensive understanding of the evolving digital commerce landscape and its implications for retailers.

The findings of this study largely confirm and extend established theoretical models such as the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and the Consumer Decision-Making Model (CDM).

- TAM is strongly supported, particularly in the context of consumers' adoption of omnichannel technologies like AI-driven shopping assistants, personalised recommendations and mobile apps. Respondents who perceived these technologies as useful and easy to use demonstrated higher pre-purchase engagement and purchase conversion, aligning with TAM's constructs of perceived ease of use and perceived usefulness.
- The findings also affirm TPB, as social influence (using social media engagement and peer reviews) and perceived behavioural control (logistical ease and payment flexibility) significantly influenced shopper intentions, especially among low-involvement product consumers. These results validate how subjective norms and control beliefs shape intention and action within the omnichannel space.
- The CDM is notably extended through the integration of risk perceptions and omnichannel touchpoints across the consumer journey. The identification of both satisfaction and dissatisfaction as post-purchase outcomes offers a dual-pathway interpretation of consumer experience, which is not always explored in traditional models.

Moreover, this study adapts these established frameworks to the South African 4IR context, highlighting how infrastructure limitations, digital inequalities, and socio-economic stratification

influence the strength and applicability of these models. This necessitates a revision or extension of classical models to better reflect consumer realities in emerging markets.

Importantly, the research proposes a unified conceptual framework by blending TAM, TPB and CDM, capturing the complex interplay of psychological, technological and contextual factors that shape omnichannel behaviour. This framework offers a robust foundation for understanding digital shopper engagement in developing economies, enriching both theory and practice.

CHAPTER TEN: CONCLUSIONS AND RECOMMENDATIONS

10.1 INTRODUCTION

This chapter presents the key conclusions drawn from the study, focusing on omnichannel shopper behaviour in South Africa in the 4IR context. It examines how consumer demographics and technological interactions shape retail strategies, customer engagement and policymaking. The findings highlight challenges and opportunities in the evolving retail landscape, emphasising the need for businesses to adapt to changing consumer expectations. Based on these insights, the chapter provides practical recommendations for retailers, marketers and policymakers to enhance technological adoption, improve engagement strategies and optimise the omnichannel shopping experience. These strategic recommendations aim to drive long-term growth and competitiveness in the digital retail sector.

10.2 SUMMARY OF THE STUDY

i. Chapter One: Introduction

This chapter introduced the study, outlining the research problem, objectives and significance of understanding omnichannel shopper behaviour in South Africa in the 4IR context. It established the foundation for exploring technological advancements in retail and their impact on consumer decision-making. The chapter also defined key concepts and provided an overview of the research methodology.

ii. Chapter Two: Evolution from Single-Channel to Omnichannel Retailing

This chapter reviewed the evolution of retailing in South Africa, highlighting the transition from single-channel to omnichannel strategies. It examined various retail channels, including mobile commerce, social commerce and electronic commerce, demonstrating how retailers have adapted to technological advancements and changing consumer expectations.

iii. Chapter Three: The Fourth Industrial Revolution

This chapter explored the historical progression of industrial revolutions, focusing on the transition to the 4IR. It examined key 4IR components relevant to retail, such as artificial intelligence,

automation and digital integration, providing insights into how these innovations reshape the omnichannel shopping experience.

iv. Chapter Four: Consumer Behaviour and Theoretical Grounding

This chapter presented the theoretical foundations underpinning the study. It reviewed key consumer behaviour theories and frameworks, including the technology acceptance model (TAM) and the theory of reasoned action (TRA). The chapter also introduced the researcher's conceptual framework, outlining its relevance in understanding omnichannel shopping behaviour.

v. Chapter Five: Research Methodology

This chapter detailed the research methodology, describing the research design, target population, sampling methods and data collection techniques. It outlined the measuring instruments, data analysis methods and steps to ensure validity and reliability. Ethical considerations, including anonymity and confidentiality, were also discussed.

vi. Chapter Six: Findings, Analysis and Interpretation—Demographic Profile and Artificial Intelligence

This chapter presented the findings on respondents' demographic profiles and their engagement with AI in in-store and online shopping. Descriptive and inferential statistical analyses were used to assess relationships between key variables. Cross-tabulations and statistical calculations provided more profound insights into AI's role in shaping omnichannel consumer experiences.

vii. Chapter Seven: Findings, Analysis and Interpretation—Social Media and Risk

This chapter focused on consumer behaviour concerning social media engagement and perceived risks in omnichannel shopping. It examined consumer interactions with social media platforms during shopping, highlighting their influence on decision-making. Additionally, it assessed various perceived risks, such as financial, logistical and time-loss concerns, shaping consumer confidence in digital commerce.

viii. Chapter Eight: Findings, Analysis and Interpretation—Consumer Behaviour

This chapter analysed consumer behaviour across different product categories by comparing high-involvement purchases (smartphones) with low-involvement purchases (groceries). The findings were presented using statistical techniques, including cross-tabulations and correlation analyses to highlight behavioural patterns and differences in shopping preferences.

ix. Chapter Nine: Discussion of Results

This chapter provided an in-depth discussion of the study's findings, linking them to existing literature and theoretical frameworks. It reiterated the research objectives and summarised key insights while highlighting emerging patterns, trends and unexpected results. The discussion contextualised findings within South Africa's retail landscape, addressing their practical and theoretical implications. Additionally, limitations were acknowledged, ensuring a balanced interpretation of results.

x. Chapter Ten: Conclusions and Recommendations

This chapter concludes the study by synthesising key findings and their broader implications. It presents theoretical contributions, outlining the study's advanced knowledge of omnichannel retailing and consumer behaviour. This chapter provides practical recommendations for retailers, policymakers and industry stakeholders, offering strategies to optimise omnichannel experiences. The chapter also identified areas for future research, encouraging further exploration of evolving trends and technological advancements in South African retail.

10.3 MAIN FINDINGS REGARDING THE RESEARCH PROBLEM

The study provided insights into omnichannel shopper behaviour in the South African 4IR era. The key findings include:

High Engagement with Omnichannel Strategies as consumers actively use various shopping channels, indicating a positive reception toward omnichannel retailing. Technologies like self-service kiosks, smart shelf tags and mobile shopping apps significantly enhance the shopping experience. Mobile devices are crucial in bridging the gap between online and offline experiences, influencing decisions and shaping purchase behaviours. Despite the convenience offered by technology, data privacy and cybersecurity remain significant concerns among consumers,

affecting their trust and willingness to engage with digital platforms. The study highlighted the influence of socio-economic factors such as income levels and education on omnichannel shopping preferences and behaviours, suggesting a disparity in access and utilisation of omnichannel services. The rapid adoption of 4IR technologies, like AI and robotics, reshapes consumer expectations and forcing retailers to rethink their strategies to provide seamless, personalised shopping experiences across multiple channels.

10.4 CONCLUSION EMANATING FROM THE STUDY SAMPLE

The demographic findings of this study provide critical insights into the characteristics of omnichannel shoppers in South Africa. The results indicate a diverse consumer base, with variations in age, gender, education level, occupation and geographic location influencing shopping behaviours. Younger, digitally literate consumers exhibited a stronger inclination towards online and mobile shopping. In contrast, older consumers preferred traditional retail channels, highlighting the need for retailers to implement tailored engagement strategies.

The study also found that higher education levels correlated with greater adoption of digital shopping platforms, reflecting the role of digital literacy in omnichannel retail participation. Additionally, geographic disparities were evident, with urban consumers enjoying more seamless access to omnichannel retail options, whereas rural consumers faced logistical and infrastructural barriers. These findings underscore the need for retailers to expand digital access and enhance last-mile logistics in underserved areas.

Overall, the demographic findings highlight the evolving nature of retail consumers in South Africa, reinforcing the importance of personalised, inclusive and technology-driven strategies. Retailers must leverage these insights to optimise customer engagement and ensure that omnichannel experiences align with the diverse needs and expectations of the South African consumer base.

10.5 CONCLUSIONS ARISING FROM THE RESEARCH OBJECTIVES

Consumer engagement with multiple shopping channels highlights the growing effectiveness of omnichannel strategies in South Africa, necessitating seamless service integration across platforms to meet evolving consumer expectations. The pervasive influence of technology on shopping behaviour, mainly through mobile platforms, underscores the need for retailers to enhance mobile shopping experiences and adopt personalised marketing strategies that resonate

with digitally savvy consumers. Concurrently, rising concerns over data privacy and security demand that retailers prioritise robust cybersecurity measures and transparent data handling practices to foster consumer trust. Moreover, the significant influence of socio-economic factors on consumer behaviour emphasises the importance of adaptable omnichannel strategies tailored to diverse consumer segments, ensuring inclusivity and addressing varied consumer needs and capabilities.

10.5.1 Objective One: To describe the omnichannel shopper behaviour in the emerging Fourth Industrial Revolution in South Africa

The findings highlight that omnichannel shopper behaviour in South Africa is evolving rapidly due to advancements in 4IR technologies. Consumers increasingly engage with multiple retail channels, including physical stores, mobile apps, websites and social media platforms, demonstrating a shift towards seamless, technology-driven shopping experiences. While digital adoption is strong, convenience, trust and accessibility influence consumer preferences across different channels. The study also revealed that urban shoppers benefit from greater omnichannel integration than rural consumers, who face infrastructural challenges. The interplay between digital convenience and traditional shopping habits suggests that South African retailers must enhance omnichannel strategies by integrating AI-driven recommendations, secure payment gateways and personalised marketing to meet the expectations of an increasingly digitally savvy consumer base.

10.5.2 Objective Two: To determine the 4IR emerging trends in omnichannel retailing

The findings indicate that emerging 4IR trends are reshaping omnichannel retailing in South Africa, with AI playing a pivotal role in online and in-store environments. Consumers increasingly engage with AI-driven features, such as personalised recommendations, virtual assistants and automated checkout systems, which enhance convenience and efficiency. However, adoption levels vary across demographic groups, with younger, tech-savvy consumers demonstrating greater acceptance of AI-driven shopping experiences. Despite these advancements, concerns regarding data privacy, trust and digital literacy remain key barriers to widespread adoption. To fully leverage 4IR technologies, South African retailers must focus on consumer education, trust-building initiatives and seamless AI integration to enhance the omnichannel shopping experience while addressing consumer concerns.

10.5.3 Objective Three: To analyse shopper behaviour on social media platforms

The findings highlight the significant role of social media in shaping omnichannel shopper behaviour, particularly in the pre-purchase phase. Consumers actively engage with platforms for product discovery, reviews and peer recommendations, reinforcing the influence of digital word of mouth in purchasing decisions. The study also reveals that social media fosters brand interactions and promotional engagement, with younger consumers being the most active participants. However, trust in online reviews and concerns about misinformation remain challenges that impact consumer confidence. To optimise social media as a retail channel, businesses must prioritise credibility, personalised marketing and interactive engagement strategies, ensuring that consumers receive accurate, relevant and value-driven content that enhances their shopping experience.

10.5.4 Objective Four: To analyse omnichannel shopper behaviour on high- and low-involvement products

The findings reveal distinct differences in consumer behaviour across high- and low-involvement products in omnichannel retailing. Consumers research extensively, rely on expert reviews and compare multiple channels before purchasing high-involvement products, such as smartphones. Trust, brand reputation and perceived risk are crucial in decision-making. Conversely, low-involvement products, like groceries, involve habitual purchasing patterns, with convenience, price promotions and availability driving consumer choices. While digital engagement is increasing for both product types, the need for physical interaction remains stronger for high-involvement purchases. These insights emphasise the importance of tailored omnichannel strategies that address the unique decision-making processes for different product categories while ensuring seamless integration between online and offline touchpoints to enhance consumer satisfaction and loyalty.

10.5.5 Objective Five: To propose an omnichannel shopper behaviour model for South Africans in the emerging Fourth Industrial Revolution

Part of this study's enquiry is to propose a consumer decision-making framework that captures the role of omnichannel usage across varying product involvement levels. This is also the theoretical contribution and implication of the study. The study contributes meaningfully to the growing field of consumer behaviour, especially in the digital age, by validating a conceptual model that differentiates between high-involvement and low-involvement product purchases.

Grounded heavily on the consumer decision-making model, the study extends the applicability of technology acceptance, the theory of planned behaviour and consumer decision-making in omnichannel shopping behaviour in the South African context. The proposed framework illustrated in Figure 10.1 reveals the distinct cognitive pathways consumers navigate pre-purchase, purchase and post-purchase stages, as influenced by omnichannel platforms (AI technology and social media). The model explains the differential impact of AI (Tech) and social media on consumer satisfaction and dissatisfaction, mediated by the purchase and pre-purchase experience, across two distinct product involvement contexts: high-involvement and low-involvement products. The model was tested and validated by employing SEM and CFA analysis.

Deliberate, multi-stage evaluation processes mark the consumer journey for high-involvement products like smartphones. The study confirmed that social media (SOC) significantly shapes the pre-purchase evaluation ($\beta = 0.210$, $p < 0.001$). At the same time, technology tools (TEC), surprisingly, did not directly influence pre-purchase evaluation ($\beta = 0.110$, $p = 0.104$). This highlights the social dimension of modern consumerism, where subjective norms and peer influences drive information vetting more profoundly than technological tools alone (Ajzen, 1991). This finding is consistent with Lemon and Verhoef (2016: 69), who emphasise the role of social proof and influencer endorsements in complex decision-making, especially for products involving high risk and personal relevance.

However, technology does emerge as a meaningful enabler for pre-purchase readiness ($\beta = 0.181$, $p < 0.001$), suggesting that AI-driven recommendation engines and digital interfaces provide the confidence needed for action, aligning with the Technology Acceptance Model (TAM) (Davis, 1989). The most dominant path in this model was between pre-purchase evaluation and purchase intention ($\beta = 0.819$, $p < 0.001$), supporting the view that for high-involvement products, detailed evaluation is a central pivot in converting interest into action (Kotler and Keller 2016: 173). The post-purchase journey for high-involvement products, as the data suggest, involves a strong loop back into brand communities and feedback systems, underscoring the cyclical nature of modern consumer-brand relationships (Oliver 1980: 466; Kumar et al., 2021: 546).

In contrast, the low-involvement model (groceries) revealed a more streamlined and transactional pathway, with lower cognitive engagement, but digital and social triggers still play significant roles. Both technology (TEC) and social media (SOC) positively influenced pre-purchase behaviour ($\beta = 0.189$, $p = 0.005$ and $\beta = 0.332$, $p < 0.001$ respectively), confirming the pivotal role of convenience-driven digital tools such as personalised promotions and automated lists in habitual

shopping contexts (Grewal et al., 2020: 89). Social influence was particularly dominant, suggesting that even low-stakes purchases are increasingly shaped by peer-generated content (Lemon and Verhoef, 2016: 73).

Unlike the smartphone model, the relationship between pre-purchase evaluation and purchase behaviour (PUR) was weak and statistically insignificant ($\beta = 0.021$, $p = 0.733$). This aligns with the view that in habitual, low-cost decision-making contexts, the transition from evaluation to action is often bypassed altogether in favour of speed and convenience (Kotler and Keller 2016: 181). Instead, the consumer's experience of the purchase process itself and its outcome emerged as significant predictors of post-purchase satisfaction (SA) and dissatisfaction (DIST), validating Oliver's (1980: 467) expectancy-disconfirmation theory. When purchase processes were smooth and efficient, satisfaction improved ($\beta = 0.129$, $p = 0.050$), while complications triggered dissatisfaction ($\beta = 0.436$, $p < 0.001$). These results highlight the operational aspects of distribution and payment systems as central to the low-involvement customer experience, consistent with the insights of Verhoef, Kannan, and Inman (2015: 177).

When contrasting the two models, it is clear that high-involvement journeys rely heavily on cognitive engagement and social validation, while low-involvement journeys are shaped by habitual behaviour and digital facilitation. In both contexts, technology acts more as a channel enabler than a direct motivator for purchase decisions.

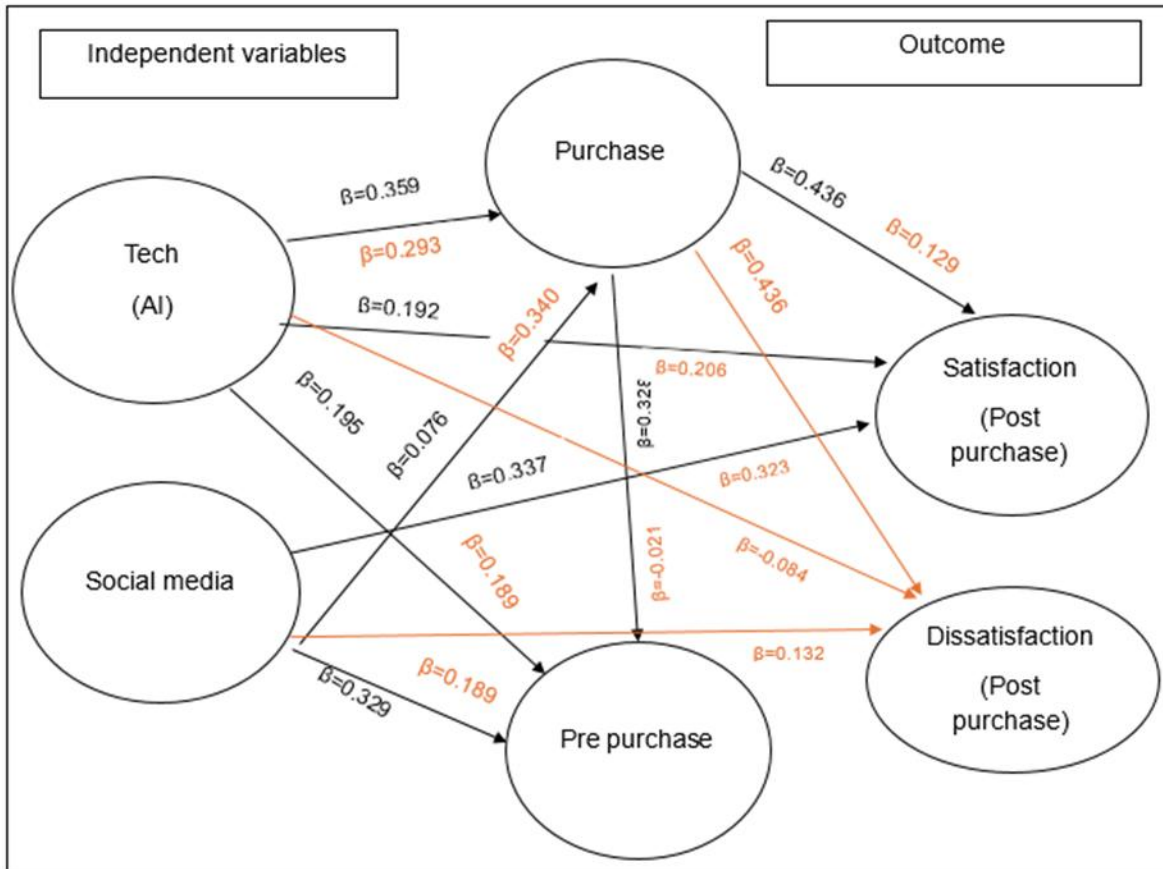


Figure 10. 1 Omnichannel high and low involvement path to purchase

Notes: The Black path represents high involvement products, the orange path represents low involvement products

Drawing the model, the study reinforces the multidimensional nature of consumer decision-making in the Fourth Industrial Revolution (4IR) era, highlighting the roles of technology and social networks across product categories. The use of path analysis in this research has successfully illuminated how both observable and latent constructs interact in the consumer decision journey (Martynova, West and Liu, 2018: 327; Khine et al., 2013: 30). For high-involvement products, for example, the findings support the Theory of Planned Behavior (Ajzen, 1991) and extend the Technology Acceptance Model (Davis, 1989) by showing that perceived ease of information access and social validation jointly cultivate behavioural readiness rather than immediate purchase. For low-involvement products, the research suggests that habitual convenience dominates over reflective evaluation, with social cues acting as shortcuts to decision-making. This finding refines the traditional Consumer Decision-Making Model (Blackwell et al., 2006).

The differential influence of technology and social media across product types confirms that consumer journeys cannot be understood in isolation from the product category and user context. The study further validates that AI-powered tools and peer-to-peer digital interactions are increasingly shaping the formation of pre-purchase and post-purchase attitudes, which demands theoretical frameworks that integrate both social and technological determinants.

The study illustrates that while technology and social media are common denominators in modern consumer journeys, the weight and sequencing of their influence differ substantially across involvement levels. These insights deepen our theoretical understanding of omnichannel consumer behaviour and provide clear pathways for designing tailored digital and retail strategies that align with cognitive complexity and purchase routine.

The proposed omnichannel high/low involvement model advances existing consumer behaviour theories by integrating cognitive and habitual decision pathways within a single framework, showing how high- and low-involvement purchases operate as parallel but distinct decision architectures that the same consumer may switch between depending on context. Unlike the Theory of Planned Behaviour, the Technology Acceptance Model, or the traditional Consumer Decision-Making Model, it positions technology and social influence as central, dynamic forces whose sequencing and weight shift by involvement level—acting as information facilitators and validators in high-involvement purchases, but as decision triggers and execution enablers in low-involvement contexts. Through path analysis, it captures how latent constructs such as perceived ease of access, social validation, and habitual convenience interact in the 4IR environment, extending theoretical scope to post-purchase stages where technology-enabled follow-up and social endorsement create feedback loops for future decisions. By explicitly differentiating pathways across product categories, the model challenges one-size-fits-all assumptions and offers a multi-path, stage-sensitive, and contextually adaptable framework that reflects the complexity of AI-powered, socially embedded consumer journeys.

10.6 RECOMMENDATIONS

This section provides actionable recommendations based on the study's findings, offering insights for retailers, policymakers and industry stakeholders to enhance the omnichannel shopping experience in South Africa. It addresses strategies to improve consumer engagement, optimise technological adoption and mitigate identified risks in digital commerce. Recommendations focus on refining AI integration in retail environments, leveraging social media for enhanced consumer

interaction and tailoring marketing strategies for high- and low-involvement products. Additionally, guidance is provided on strengthening logistics and delivery reliability while fostering consumer trust in online transactions. These recommendations aim to bridge gaps in omnichannel retailing by ensuring a seamless and efficient shopping experience that aligns with evolving consumer behaviours and 4IR advancements.

10.6.1 ENHANCING IN-STORE AI

Retailers should invest in AI-driven technologies that enhance customer experience and operational efficiency, such as self-service checkouts, smart shelf tags and personalised promotions. AI-powered recommendations and automated inventory management can streamline in-store and online shopping, improving customer engagement and sales. Given the reliance on consumer data for personalisation, robust data protection policies must be prioritised to ensure compliance with regulations and foster consumer trust. Policymakers should strengthen data privacy laws and establish guidelines for ethical AI use in retail, ensuring transparency and accountability. Monitoring emerging AI trends and their potential impact on consumer behaviour will enable retailers and policymakers to develop adaptive, forward-thinking strategies that maximise AI's benefits while safeguarding consumer interests.

10.6.2 OPTIMISING ONLINE ARTIFICIAL INTELLIGENCE TOOLS

Retailers should invest in AI-driven personalisation strategies, such as tailored recommendations and improved chatbot functionalities, to enhance user experience and engagement. Advancements in AI-powered assistance, including voice and image search, can streamline product discovery, making shopping more efficient and intuitive. Collaboration with technology developers is essential to refine these innovations, ensuring they meet evolving consumer needs and drive adoption. Policymakers should establish regulatory frameworks that support responsible AI development while safeguarding consumer data privacy. Encouraging industry partnerships and research initiatives can accelerate AI-driven retail innovation, fostering a more adaptive and consumer-centric omnichannel shopping environment.

10.6.3 LEVERAGING SOCIAL MEDIA IN RETAIL STRATEGY

Retailers must refine their social media strategies by prioritising high-quality, engaging content, such as videos, infographics and targeted advertisements to enhance brand visibility and consumer interaction. Active engagement—responding to comments, fostering discussions and

addressing consumer concerns—builds trust and strengthens customer relationships. Leveraging user-generated content and encouraging satisfied customers to leave positive reviews can enhance credibility, while professional handling of negative feedback safeguards brand reputation. To maintain competitiveness, retailers should ensure transparent pricing and emphasise product value through strategic messaging and influencer collaborations. Social media analytics will allow for data-driven refinements in marketing strategies. Educational content, such as webinars and how-to guides, can also deepen customer engagement and loyalty.

Policymakers should support digital literacy initiatives, ensuring businesses, particularly SMEs, can leverage social media effectively. Regulatory frameworks should encourage ethical advertising, consumer data protection and responsible influencer marketing to foster a transparent and fair digital retail ecosystem.

10.6.4 ENHANCING CONSUMER ENGAGEMENT ON SOCIAL MEDIA

Retailers should focus on emotionally resonant content, such as storytelling and user-generated posts, to foster deeper consumer connections. Optimising content to evoke strong emotions, happiness, nostalgia, or empathy can increase engagement and strengthen brand loyalty. Encouraging active participation through open-ended questions, live Q and A sessions and well-promoted contests can drive discussion and organic shares. Given the consumer preference for competition, retailers should incorporate giveaways that leverage user-generated content, expanding their content library while boosting brand reach.

Maintaining a consistent presence across platforms with regular updates, exclusive offers and cross-channel promotion (e.g., email, website) ensures sustained consumer engagement. Retailers should also partner with influencers who align with their brand values to extend their reach authentically. Selecting influencers based on audience relevance rather than sheer follower count enhances credibility and engagement.

Policymakers should establish guidelines for responsible influencer marketing, ensuring transparency in sponsored content. Digital literacy initiatives can empower small businesses to leverage data-driven social media strategies. Retailers must utilise analytics tools to track content performance, refine their approach to maximise engagement and optimise their omnichannel presence.

10.6.5 MITIGATING PERCEIVED FINANCIAL RISK

While most respondents feel secure shopping online, retailers must continue investing in robust security measures, such as encryption, multi-factor authentication and fraud detection. Transparent communication about these safeguards and regular updates will reinforce consumer trust. Policymakers should ensure digital commerce platforms adhere to stringent data protection regulations and promote cybersecurity awareness campaigns to educate consumers on safe online shopping practices.

Given the importance of seamless refund processes, retailers should streamline and communicate their refund policies, ensuring quick resolutions and accessible customer support. Strengthening customer service, particularly in handling financial concerns, can enhance satisfaction. Since some respondents still express concerns about security, pricing accuracy and economic data protection, targeted consumer surveys or feedback mechanisms should be employed to identify and address these pain points.

Retailers should emphasise value-for-money messaging through promotions, discounts and loyalty programmes, reinforcing the cost-saving benefits of e-commerce. Additionally, policymakers should encourage transparent pricing regulations to prevent deceptive pricing practices. Regular consumer sentiment tracking will help retailers stay attuned to evolving expectations, ensuring continuous improvements through AI-driven support, enhanced payment security and refined customer engagement strategies.

10.6.6 REDUCING TIME-RELATED RISK

Retailers should continually optimise the user interface and checkout process to reduce friction and enhance convenience. Implementing one-click purchases, saved payment details and quick reordering will streamline the shopping experience. Policymakers should encourage digital accessibility standards to ensure seamless navigation across various consumer segments, including those with limited digital literacy.

Retailers must invest in backend logistics to improve operational efficiency, ensuring faster order processing and real-time tracking. Transparent communication about each stage of order fulfilment will help manage expectations and reinforce trust. AI-driven search functions should be integrated to personalise product recommendations and improve search accuracy, allowing consumers to find items quickly.

Efficient returns and refund policies remain crucial for consumer satisfaction. Retailers should simplify return initiation, offer instant refunds where feasible and enhance transparency by providing clear timelines and proactive updates. Incentivising smooth return experiences through benefits such as free shipping or priority processing for loyal customers can further strengthen retention. Policymakers should support consumer protection measures that ensure fair return policies while promoting industry-wide best practices for efficient post-purchase service.

10.6.7 ADDRESSING TRANSACTIONAL RISK

To reassure customers, retailers should enhance the visibility of security features such as SSL certificates, secure payment gateways and encryption protocols at checkout. Displaying trust badges and offering real-time fraud detection can reinforce confidence in digital transactions. Policymakers should support regulations that mandate transparency in security protocols to ensure consumer protection in online transactions.

Retailers must proactively educate consumers on safe online shopping practices, including secure password management, phishing awareness and two-factor authentication (2FA) benefits. Implementing biometric authentication and encryption in mobile apps will enhance security while ensuring a seamless user experience. Regular security updates and clear communication about improvements should be provided to reassure users of ongoing protection efforts.

Maintaining transaction accuracy is crucial for consumer trust. Retailers should ensure easy access to order history, digital receipts and prompt resolution processes for discrepancies. Strengthening account security through mandatory 2FA and password best practices will reduce risks. Policymakers should encourage industry-wide adoption of these measures to establish security as a standard rather than an option.

Encouraging users to install and regularly update antivirus software, particularly on devices used for online shopping, is essential. Retailers could consider partnerships with cybersecurity firms to provide free trials or discounts, promoting wider adoption of security tools. By integrating these security measures, retailers and policymakers can build a safer digital commerce environment that protects consumers and fosters long-term trust.

10.6.8 OVERCOMING LOGISTICS-RELATED CHALLENGES

Retailers should implement Address Verification Systems (AVS) to ensure accuracy during checkout, reducing mis-deliveries caused by incomplete or incorrect addresses. Automated verification tools and warehouse barcode scanning can help prevent order errors before dispatch. Training delivery personnel to verify addresses and equipping vehicles with real-time GPS tracking can minimise inaccurate deliveries. Policymakers should encourage standardised address formats and digital mapping improvements to enhance last-mile delivery accuracy.

To ensure product integrity, retailers must invest in durable, protective packaging for fragile and high-value items and train warehouse and delivery staff in proper handling techniques. Implementing damage tracking systems can help identify weak points in the supply chain and improve quality control measures. Policymakers can support industry-wide guidelines for packaging standards to ensure consistency in transit safety.

Retailers should use route optimisation software and historical data to make timely and efficient deliveries, improve delivery time estimates and reduce delays. Expanding third-party logistics partnerships and increasing temporary staffing during peak demand periods can help maintain service efficiency. Policymakers should work with the private sector to improve infrastructure in underserved areas, ensuring better logistical coverage.

Double-checking product specifications before dispatching can enhance order accuracy, especially for customised items. Retailers should provide order confirmation summaries before shipping, allowing customers to verify details and reduce returns due to disorders. Strengthening communication between retailers, logistics providers and customers will ensure seamless, reliable delivery experiences, fostering greater trust in South Africa's e-commerce, m-commerce and s-commerce sector.

10.6.9 IMPROVING THE PRE-PURCHASE EXPERIENCE

Retailers should enhance consumer awareness and engagement by offering AI-driven personalised recommendations, interactive product previews and informative content across multiple touchpoints, including websites, apps and social media. Smartphone retailers should collaborate with digital platforms and mobile networks to provide targeted product education, exclusive pre-purchase deals and early access promotions.

Grocery retailers should improve product transparency by integrating detailed descriptions, nutritional information and customer reviews into their digital platforms. Interactive features like live chat support and AI-powered shopping assistants can further guide decision-making. Policymakers should ensure consumer protection regulations support transparent advertising, fair pricing and accurate online product representations to build consumer trust in digital shopping.

10.6.10 STREAMLINING THE PURCHASE PROCESS

Smartphone retailers should enhance omnichannel integration by offering flexible delivery and collection options, such as "click-and-collect" services, to accommodate consumers seeking immediate access to products while minimising logistical costs. Collaborating with local courier services can improve delivery efficiency, particularly in rural and peri-urban areas, ensuring wider accessibility. Retailers should also optimise mobile-friendly payment solutions to streamline the checkout process and reduce friction in the online purchasing journey.

Grocery retailers should prioritise refining their digital commerce platforms by improving user navigation, ensuring accurate stock updates and providing transparent delivery timelines with cost-effective options. Community-based delivery networks, including partnerships with local informal couriers, can enhance last-mile logistics and accessibility in underserved regions. Investing in "dark stores" dedicated to online order fulfilment can enhance operational efficiency and improve service reliability. Policymakers should support infrastructure development and digital inclusion initiatives to ensure broader access to digital commerce, particularly in remote areas.

10.6.11 ENHANCING THE POST-PURCHASE EXPERIENCE

Retailers should implement consumer-centric return policies, such as extended return windows and convenient pick-up services, to minimise post-purchase friction and enhance customer confidence. Social media campaigns can strengthen brand advocacy and influence potential buyers by encouraging user-generated content, including reviews and unboxing videos. Additionally, loyalty programmes that reward repeat purchases and referrals should be tailored to South Africa's aspirational consumers, fostering long-term engagement.

Grocery retailers should optimise loyalty programmes by offering personalised discounts based on shopping habits, reinforcing habitual purchasing patterns. Digital platforms can be leveraged to gather customer feedback through interactive surveys or gamified review systems, ensuring

continuous engagement and service refinement. Marketers can market high-value or premium grocery products by highlighting their cultural and social relevance through shareable content, which will resonate with South African consumers. Policymakers should support consumer protection regulations that ensure transparent return policies and promote digital consumer feedback mechanisms to enhance accountability in the retail sector.

10.6.12 INTEGRATED STRATEGIC RECOMMENDATIONS FOR OMNICHANNEL RETAILING

Based on the findings, the following recommendations address the opportunities and challenges in South Africa's omnichannel retail sector, focusing on smartphones and groceries. These strategies aim to align with consumer expectations, leverage emerging technologies and promote trust and inclusivity.

1. Strengthen Omnichannel Integration

Retailers should ensure seamless integration between online and offline channels. Smartphone retailers can expand "click-and-collect" services and offer virtual demonstrations, while grocery retailers should enhance digital interactions through QR codes, mobile loyalty apps and local delivery partnerships.

2. Invest in Advanced Technologies

Retailers must adopt AI-driven personalisation for tailored recommendations, dynamic pricing and in-store digital tools like smart shelf tags and self-checkouts. Mobile shopping platforms should integrate AI-powered search and chatbot support to enhance the digital experience.

3. Enhance Consumer Trust

Encryption, multi-factor authentication and clear refund policies must be prioritised to ensure security and transparency. Retailers should also ensure consistent pricing, accurate product descriptions and proactive customer support to reinforce trust in digital transactions.

4. Leverage Social Media for Engagement

Retailers should create engaging content that resonates emotionally, encourages interaction and leverages influencer partnerships. Actively managing online reviews and using data analytics to refine content strategies will enhance consumer trust and brand visibility.

5. Address Socio-Economic Diversity

Retailers must introduce flexible payment options, mobile wallets and instalment plans to cater to price-sensitive consumers. Expanding localised delivery networks and digital literacy programmes can enhance accessibility and participation in digital commerce.

6. Optimise Logistics and Fulfilment Efficiency

Retailers should implement automated address verification, upgrade packaging for product safety and adopt route optimisation tools to enhance delivery efficiency. Providing real-time tracking and responsive customer support can improve post-purchase experiences.

7. Drive Loyalty and Advocacy

Retailers should develop personalised loyalty programmes, gamified feedback systems and shareable content that builds emotional connections with consumers. Exclusive rewards and promotions tailored to aspirational shoppers can benefit high-value segments.

8. Foster Continuous Innovation

Retailers must stay agile by monitoring AI advancements and evolving consumer behaviours. Strengthening feedback mechanisms and collaborating with technology developers on voice- and image-based shopping solutions can enhance the shopping experience.

9. Promote Sustainability

Retailers should integrate eco-friendly initiatives such as digital shelf tags, sustainable packaging and green logistics. Marketing campaigns highlighting sustainability efforts can reinforce brand credibility and attract environmentally conscious consumers.

10. Policy and Infrastructure Development

Retailers and policymakers must collaborate to improve digital accessibility, consumer protection and innovation-friendly regulations. Investing in infrastructure and digital literacy programmes can bridge the socio-economic gap and create a more inclusive retail ecosystem.

By implementing these recommendations, retailers can enhance engagement, drive loyalty and create a resilient omnichannel retail landscape in South Africa.

10.7 LIMITATIONS OF THE STUDY

While this study provides valuable insights into omnichannel shopper behaviour in South Africa within the 4IR environment, it is important to acknowledge several limitations:

- **Urban-Centric Focus:** The research primarily examined consumer behaviour in urban areas where omnichannel retailing is more developed. This may not fully capture the experiences of rural consumers, who face different infrastructural and technological adoption challenges.
- **Limited Subgroup Insights:** While the study accounted for socio-demographic variations, deeper analysis of specific consumer segments, such as lower-income earners and older consumers, was limited. These groups may have distinct barriers to omnichannel adoption that require further investigation.
- **Emphasis on Advanced Technologies:** The study focused on AI, mobile apps and digital retail innovations, potentially overlooking lower-tech but effective omnichannel strategies that may be more suitable for emerging consumer segments in South Africa.
- **Short Data Collection Period:** The study's timeframe may not have sufficiently captured long-term consumer behaviour, particularly seasonal variations or shifts driven by economic conditions. A longitudinal approach could offer more comprehensive insights.
- **Quantitative Approach:** While quantitative analysis provided strong statistical findings, the absence of qualitative data may have limited the depth of understanding regarding consumer motivations, perceived risks and emotional factors influencing omnichannel adoption.
- **Data Privacy Bias:** Some respondents may have withheld or modified their responses due to concerns about data privacy, affecting the accuracy of findings related to digital engagement, payment security and personalisation preferences.
- **Technological Evolution:** Given the rapid advancements in 4IR technologies, some findings may become outdated as newer innovations reshape omnichannel retailing. Continuous research is necessary to track emerging trends and evolving consumer expectations.

Addressing these limitations in future studies will enhance the understanding of omnichannel shopping behaviour in South Africa, ensuring more inclusive and adaptive strategies that reflect the country's diverse consumer landscape.

10.8 Contribution to Knowledge

This study makes several original contributions to the field of marketing and omnichannel consumer behaviour, particularly in emerging market contexts:

- This research extends the literature by providing empirical data on omnichannel shopper behaviour in South Africa, a market underrepresented in global studies. The inclusion of South African omni-shoppers within SEM 6–10 socioeconomic brackets addresses a critical gap in understanding how consumers in developing regions engage with omnichannel retailing.
- The study proposes a conceptual framework that embeds Fourth Industrial Revolution (4IR) technologies, such as AI, mobile apps and smart retail tools, within established behavioural theories (TPB, TAM, CDM). This integration offers a fresh perspective on how consumers adopt and respond to digital innovation during different stages of the shopper journey.
- By contrasting high-involvement products (smartphones) with low-involvement products (groceries), this study highlights how levels of product involvement influence consumers' use of technology and social media across the purchase path. This comparative insight advances our understanding of omnichannel behaviour beyond a one-size-fits-all approach.
- Using structural equation modelling (SEM), this study validates the proposed consumer behaviour framework with robust quantitative analysis. It confirms statistically significant pathways among constructs such as technology, social media, pre-purchase and post-purchase behaviour, contributing methodological rigour to omnichannel research in a South African context.
- Beyond academic contributions, the findings offer guidance to South African retailers and policymakers on fostering inclusive and tech-enabled retail ecosystems. Recommendations include improving infrastructure, building digital trust and enhancing consumer engagement through personalised omnichannel strategies.

Together, these contributions ensure that the research advances both theory and practice in marketing, particularly in light of rapid technological advancement and the digital transformation of retail in emerging economies.

10.9 RECOMMENDATIONS FOR FURTHER OR FUTURE RESEARCH

Future research should adopt a longitudinal approach to track evolving consumer behaviours, particularly as new technologies become embedded in daily shopping activities. Comparative studies across different economic contexts could provide deeper insights into how omnichannel retailing varies between developed and emerging economies, shedding light on unique adoption patterns and barriers. Additionally, qualitative research could explore individual consumer narratives, offering a richer understanding of the psychological and emotional factors influencing shopping decisions. Given the rapid technological advancements, future studies should also examine the impact of emerging innovations, such as augmented reality and advanced AI, on consumer expectations and retail engagement. These directions will contribute to a more comprehensive understanding of omnichannel retailing and guide retailers in adapting to shifting consumer demands.

10.10 CONCLUSION OF THE STUDY

This study provides a comprehensive analysis of South African omnichannel shopper behaviour in the evolving landscape of the Fourth Industrial Revolution. It highlights the transformative role of digital technologies in shaping consumer engagement across multiple retail channels. The findings underscore the need for retailers to adopt data-driven, consumer-centric strategies that integrate advanced technologies such as AI, mobile applications and social media engagement while addressing critical challenges such as trust, logistics and socio-economic diversity. By implementing the study's recommendations, retailers can optimise omnichannel experiences, enhance operational efficiency and foster long-term consumer loyalty. Furthermore, this research contributes valuable insights to academia and industry, offering a foundation for future studies on technology-driven retail evolution. As omnichannel retailing continues to evolve, ongoing innovation and adaptability will be crucial in meeting the changing expectations of South African consumers and ensuring sustainable growth in the digital economy.

LIST OF REFERENCES

- 1life. 2018. *Online shopping does save you time and money*. Available: https://www.1life.co.za/blog/save-online-shopping?utm_source= (Accessed 27 December 2024).
- 84.51°. 2024. *Insights*. Available: <https://www.8451.com/solutions/insights/> (Accessed 01 April 2025).
- Abe, I. I. and Mugobo, V. V. 2021. Changes in Retail Consumer Behaviour in South Africa during COVID-19: Permanent or Temporary. *Retail and Marketing Review*.
- Abdullah, D. B., Abdullah, M. Y. and Salleh, M. A. M. 2017. A review of the concept of the Fourth Industrial Revolution and the government's initiatives to promote it among youths in Malaysia. *Journal of Social Sciences and Humanities*, 14(7): 1-8.
- Abdullah, M. H. S. and Faisal, A. 2022. The Role Of Social Media Marketing Activities In Increasing Brand Loyalty. *Jurnal Ekonomi*. 27(3):478-499.
- Abidin, C. 2015. Communicative intimacies: influencers and perceived interconnectedness. *ADA: A journal of Gender, New Media and Technology*, 8. Available: <http://doi:10.7264/N3MW2FFG> (Accessed 26 December 2024).
- Adams, K. and Lawrence, E. K. 2014. *Research methods, statistics and applications*. London: Sage.
- Agatz, N., Fleischmann, M. and van Nunen, J. 2008. E-fulfilment and multi-channel distribution - A review. *European Journal of Operational Research*, 187(2): 339-356. Available: <https://econpapers.repec.org/scripts/redir.pf?u=http%3A%2F%2Fwww.sciencedirect.com%2Fscience%2Farticle%2Fpii%2FS0377-2217%2807%2900419-5;h=repec:eee:ejores:v:187:y:2008:i:2:p:339-356> (Accessed 12 December 2023).
- Aghoghovwia, P., Ismail, Y., Mahomed-Asmail, F., Marivate, V. and Steenhuisen, S. 2021. The Fourth Industrial Revolution - what does it mean to our future faculty? *South African Journal of Science*. 117 (5/6): 14-16.
- Ahmetoglu, G., Che Cob, M. and Ali, N. 2022. Theoretical frameworks in consumer behaviour research. *Journal of Consumer Studies*, 40(1): 32-45.
- Ailawadi, K. L., Neslin, S. A. and Gedenk, K. 2008. Pursuing the Value-Conscious Consumer: Store Brands versus National Brand Promotions, *Journal of Marketing*, 72(2): 115-132.
- Ailawadi, K.L., Pauwels, K. and Steenkamp, J-B.E.M. 2008. Private-label use and store loyalty. *Journal of Marketing*, 72(6): 19–30.
- Ajzen, I., 1991. The theory of planned behaviour. *Organisational Behaviour and Human Decision. Processes*. 50(2): 179–211. Available: [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T) (Accessed 20 December 2024).

- Akanle, O., Ademuson, G. and Shittu, A. 2023. Challenges in selecting theories for marketing research. *International Journal of Marketing Studies*, 18(2): 54-67.
- Akanle, O. and Shittu, A. 2020. The role of theoretical frameworks in social science research. *Journal of Social Research Methodology*, 12(3): 15-22.
- Akter, H. T. M. T. and Strong, C. 2021. What does omnichannel means? *Journal of Strategic Marketing*, 29(7): 567–573. Available: <https://doi.org/10.1080/0965254X.2021.1937284> (Accessed 18 December 2023).
- Alexander, B. and Kent, A. 2022. Change in technology-enabled omnichannel customer experiences in-store. *Journal of Retailing and Consumer Services*, 65: 102338.
- Alotaibi, M. and Toh, C. K. 2017. Cybersecurity awareness among consumers: The gap between perception and reality. *Computers and Security*, 70: 590–601.
- Alrawad, M., Lutfi, A., Alyatama, S., Al Khattab, A., Alsoboa, S.S., Almaiah, M.A., Ramadan, M.H., Arafa, H.M., Ahmed, N.A., Alsyounf, A. and Al-Khasawneh, A.L. 2023. Assessing customers' perception of online shopping risks: A structural equation modelling–based multigroup analysis. *Journal of Retailing and Consumer Services*, 71: 103188.
- Allen, M. 2017. *The SAGE Encyclopedia of Communication Research Methods*. Thousand Oaks: Sage Publications.
- Alexander, R., 2022. *Key opportunities and challenges for 4IR in South Africa*. SARCHI, University of Johannesburg and Wales J. *Interdisciplinary History*, 49(1): 9-42. Available: <https://www.semanticscholar.org/paper/Reconsidering-the-Industrial-Revolution%3A-England-Wrigley/e9974cb01a091574b33420357eb51fb83d4aaa8e> (Accessed 15 March 2024).
- Almoussa, M. 2011. Perceived Risk in Apparel Online Shopping: A Multi-Dimensional Perspective. *Canadian Social Science*, 7(2): 23-31. Available: <https://www.researchgate.net/publication/317039089> (Accessed 27 December 2024).
- Amazon. 2022. *Amazon Dash Cart: New features and Whole Foods Market expansion*. Available: <https://www.aboutamazon.com/news/retail/amazon-dash-cart-new-features-whole-foods> (Accessed 16 July 2024).
- Amazon Web Services. 2025. *What is Amazon Fraud Detector?* Available: <https://docs.aws.amazon.com/frauddetector/latest/ug/what-is-frauddetector.html> AWS (Accessed 01 April 2025).
- American Marketing Association. 2021. *What is marketing?* Available: <https://www.ama.org/the-definition-of-marketing-what-is-marketing/#:~:text=Marketing%20research%20is%20the%20function,understanding%20of%20marketing%20as%20a> (Accessed 31 January 2022).
- Amit P. and Kameshvari B. 2012. A Study on Consumer Behaviour of Organised and Unorganised Retail Outlets in Vadodara City. *International Journal of Engineering and Management Sciences*, 3(4): 466-474.

- Analysis in. 2020. *KMO and Bartlett's test of sphericity*. Available: <https://www.analysisinn.com/post/kmo-and-bartlett-s-test-of-sphericity/> (Accessed 06 August 2024).
- Anderson, D., Sweeney, D. and Williams, T. 2012. *Statistics for business and economics*. 11th ed. Mason: South-Western Cengage Learning.
- Anderson, J. C., Gerbing, D. W. 1988. *Structural equation modeling in practice: A review and recommended two-step approach*, 103(3): 411-423.
- Anders, L. 2024. *Revolutionising retail: the emergence of machine learning*. Available: <https://www.linkedin.com/pulse/revolutionizing-retail-emergence-machine-learning-anders-lange-uitbf/> (Accessed 17 March 2024).
- Anderson, R. E. and Srinivasan, S. S. 2003. E-satisfaction and e-loyalty: A contingency framework. *Psychology and Marketing*, 20(2): 123-138.
- Anderson, C. L. and Agarwal, R. 2010. Practising safe computing: A multimedia empirical examination of home computer user security behavioural intentions. *MIS Quarterly*, 34(3): 613–643.
- Antonov, A. A. 2011. From artificial intelligence to human super-intelligence. *International Journal of Computer Information Systems*, 2(6): 1-78. Available: https://www.researchgate.net/publication/267992073_From_Artificial_Intelligence_to_Human_Super-Intelligence?enrichId=rgreq-ac84e968a33f1e76a4348a7364af4a22-XXX&enrichSource=Y292ZXJQYWdlOzI2Nzk5MjA3MztBUzozNjlxMDc2MDc1MDI4NDhAMTQ2MzM0NDU4OTM1MQ%3D%3D&el=1_x_2&esc=publicationCoverPdf (Accessed 17 March 2024).
- AP News. 2025. Digital shelf labels adoption and consumer perceptions. *Associated Press News*, (online). Available: <https://apnews.com/article/electronic-shelf-labels-supermarket-prices-digital-132ef73fbbe2eb13a8c724b55fb458d1> (Accessed 10 August 2025).
- Arango, C., Huynh, K. P. and Sabetti, L. 2015. How Do You Pay? The Role of Incentives at the Point-of-Sale, *Journal of Banking and Finance*, 55: 56-67.
- Ariff, M.S.M., Sylvester, M., Zakuan, N., Ismail, K. and Ali, K.M. 2014. Consumer perceived risk, attitude and online shopping behaviour; empirical evidence from Malaysia, IOP Conference Series: *Materials Science and Engineering* 58(1), 29-31. Available: <https://doi.org/10.1088/1757-899X/58/1/012007> (Accessed 9 July 2024).
- Arnold, A. 2018. Consumer trust in social media is declining: Here's how brands should change their strategies, *Forbes*. Available: <https://www.forbes.com/sites/andrewarnold/2018/07/29/consumer-trust-in-social-media-is-declining-heres-how-brands-should-change-their-strategies/?sh=7f75bfb6b763> (Accessed 13 December 2023).

Aruleba, K. and Jere, N. 2022. Exploring digital transforming challenges in rural areas of South Africa through a systematic review of empirical studies. *Scientific African*, 16: 1-12. Available: <https://doi.org/10.1016/j.sciaf.2022.e01190> (Accessed 05 April 2024).

Asgari, H., Nikou, S. and Otto, P. 2023. Adoption of online grocery shopping: A systematic review. *Journal of Retailing and Consumer Services*, 78: 1-15.

Asmare, A. and Zewdie, S. 2022. Omnichannel retailing strategy: a systematic review. *The International Review of Retail, Distribution and Consumer Research*, 32:1, 59-79 Available: DOI: <https://doi.org/10.1080/09593969.2021.2024447> (Accessed 12 December 2023).

Attacq. 2023. *Integrated Annual Report 2023*. Attacq Limited. Available: <https://www.attacq.co.za/wp-content/uploads/2023/10/attacq-integrated-report-2023.pdf> (Accessed 09 August 2025).

Avery, J., Steenburgh, T. J., Deighton, J. and Caravella, M. 2012. Adding Bricks to Clicks: Predicting the Patterns of Cross-Channel Elasticities over Time. *Journal of Marketing*, 76(3), 96–111. Available: <https://doi.org/10.1509/jm.09.0081> (Accessed 26 December 2024).

Aw, E. C. X., Kamal Basha, N., Ng, S. I. and Ho, J. A. 2021. Searching online and buying offline: understanding the role of channel-consumer and product-related factors in determining webrooming intention. *Journal of Retailing and Consumer Services*, 58: 102328.

Aydin, G., Uray, N., & Silahtaroglu, G. 2022. How to Engage Consumers through Effective Social Media Use—Guidelines for Consumer Goods Companies from an Emerging Market. *Journal of Theoretical and Applied Electronic Commerce Research*, 16(4), 768-790. Available: <https://doi.org/10.3390/jtaer16040044> (Accessed 10 August 2025).

Aytekin, D. 2024. *Methodologies and Ethics for Social Sciences Research*. Pennsylvania: IGI. Global.

Azzarra, C. V. 2010. *Questionnaire design for business research: Beyond linear thinking- an interactive approach*. Oklahoma: Tate Publishing.

Babbie, E. R. 2013. *The practice of social research*. 13th ed. Belmont: Wadsworth Cengage Learning.

Babin, B. and Zikmund, W. 2016: *Essentials of Marketing Research*. 6th ed. Boston: Cengage Learning.

Baig, A., Hall, B., Jenkins, P., Lamarre, E. and McCarthy, B. 2020. The COVID-19 recovery will be digital: A plan for the first 90 days. *McKinsey Digital*, 1-8.

Bailey, R. and Seock, Y.-K. 2021. Return Policy Preferences for Grocery and Apparel E-Commerce, *Journal of Retailing and Consumer Services*, 59: 41-48.

Baines, P. and Fill, C. 2014. *Marketing*. 3rd ed. New York: Oxford University Press.

Baker, M. J., Hart, S. and Black, C.D. 2001. *Research methods for marketing decision-making*. 2nd ed. London: Macmillan.

Balakrishnan, B. K. P. D., Dahnil, M. I. and Yi, W. J. 2014. The impact of social media marketing medium toward purchase intention and brand loyalty among Generation Y. *Procedia - Social and Behavioral Sciences*, 148: 177-185. DOI: <https://doi.org/10.1016/j.sbspro.2014.07.032> (Accessed 12 December 2023).

Ballantine, P. W. 2005. Effects of interactivity and product information on consumer satisfaction in an online retail setting. *International Journal of Retail and Distribution Management*, 33.6: 461-471.

Baldwin, T. 2019. Robotics in retail: Revolutionising inventory management and customer service. *Journal of Retail Technology*, 22(3): 154-162.

Bandyopadhyay, D. and Sen, J. 2011. Internet of Things: Applications and Challenges in Technology and Standardization. *Wireless Personal Communications* 58(1): 49–69.

Bandyopadhyay, S. 2011. Mobile commerce in emerging economies: A case study of India. *Journal of Asia-Pacific Business*, 12(1): 50-67.

BankservAfrica. 2023. *Digital Payments Index: South Africa's Shift Towards Cashless Transactions*. BankservAfrica. Available: <https://www.bankservafrica.com/website/> (Accessed 10 August 2025).

Bardwell, C. H. 2013. Redefining the shopper experience with omnichannel retailing. *IDC Retailing Insight*.

Barwitz, N. and Maas, P. 2018. Understanding the Omni-channel customer journey: Determinants of interaction choice. *Journal of Interactive Marketing*, 43: 116-133. Available: <https://reader.elsevier.com/reader/sd/pii/S1094996818300082?token=A2256FB96F281F5065F28405A4E2B707755A0894FDD3DAA68C8886FFE59952CCF16444558257CD76072353FEFCB0394F> (Accessed 06 July 2020).

Batiz, G. 2001. Virtual reality. *Warehousing Management*, 8(5): 31-32.

Baykal, B. 2021. *Managing Customer Experiences in an Omnichannel World: Melody of Online and Offline Environments in The Customer Journey*. Bingley: Emerald Publishing Limited.

Baykal, G. 2021. Omnichannel shopping behaviour of millennials and Gen Z consumers. *Journal of Consumer Research*, 45(3): 12-18.

Bazaarvoice. 2023. Age, location, gender: Which impacts consumer shopping preferences more? *Bazaarvoice Blog*. Available: <https://www.bazaarvoice.com> (Accessed 5 January 2025).

Bazi, S., Hajli, A., Hajli, N., Shanmagum, M. and Lin, X. 2020. Winning engaged consumers: The rules of brand engagement and intention of co-creation in social commerce. *Information Technology and People*, 33(2): 456-476. Available: <https://doi.org/10.1108/ITP-09-2018-0415> (Accessed 23 December 2024).

Beatty, P. C., Collins, D., Kaye, L., Padilla, J., Willis, G. B. and Wilmot, A. 2019. *Advances in questionnaire design, development, evaluation and testing*. Hoboken: John Wiley and Sons.

Beck, N. and Rygl, D. 2015. Categorisation of multiple channel retailing in multi, cross and omni-channel retailing for retailers and retailing. *Journal of Retailing and Consumer Services*, 27: 170-178. Available: <http://doi.org/10.1016/j.jretconser.2015.08.001> (Accessed 6 December 2024).

Belch, G. E. and Belch, M. A. 2009. *Advertising and Promotion: An Integrated Marketing Communications Perspective*. 8th ed. New York: McGraw-Hill Irwin.

Beldad, A., De Jong, M. and Steehouder, M. 2010. How shall I trust the faceless and the intangible? A literature review on the antecedents of online trust. *Computers in Human Behavior*, 26(5): 857–869.

Belk, R. W. 2013. Extended Self in a Digital World, *Journal of Consumer Research*, 40(3): 477-500.

Bell, E., Bryman, A. and Harley, B. 2018. *Business research methods*. 5th ed. Oxford: Oxford University Press.

Bell, Gallino, S. and Moreno, A. 2018. Offline Showrooms in Omnichannel Retail: Demand and Operational Benefits. *Management Science*, 64(4), 1629–1651. Available: <https://dx.doi.org/10.2139/ssrn.2370535> (Accessed 18 December 2023).

Bell, D. R., Ho, T. H. and Tang, C. S. 2011. Store Loyalty and Buying Behavior, *Journal of Marketing Research*, 48(1): 74-91.

Bernstein, F., Song, J. and Zheng, X. 2008. "Bricks-and-mortar" vs. "clicks-and-mortar": An equilibrium analysis. *European Journal of Operational Research*, 187(3): 671-690. DOI: <https://doi.org/10.1016/j.ejor.2006.04.047> (Accessed 12 December 2023).

Bettman, J. R., Luce, M. F. and Payne, J. W. 1998. Constructive consumer choice processes. *Journal of Consumer Research*, 25(3): 187-217.

Bhattacharjee, A. 2012. *Social Science Research: Principles, Methods and Practices*. Available: https://digitalcommons.usf.edu/oa_textbooks/3 (Accessed 29 July 2024).

Biggam, J. 2011. *Succeeding with your master's dissertation: a step-by-step handbook*. 2nd ed. Berkshire: McGraw-Hill International.

Bigcommerce. 2024. *Omnichannel Retail Strategy: How to Meet the Needs of Today's Shoppers*. Available: <https://www.bigcommerce.com/articles/omnichannel-retail/#h2-different-avenues-of-omnichannel> (Accessed 31 January 2025).

Billio, M., Getmansky, M., Lo, A. W. and Pelizzon, L. 2012. Econometric measures of connectedness and systemic risk in the finance and insurance sectors. *Journal of Financial Economics*, 104(3): 535-559.

Biswal, A. 2022. *What is a Chi-Square Test? Formula, Examples and Application*. Available: <https://www.simplilearn.com/tutorials/statistics-tutorial/chi-square-test> (Accessed 12 December 2022).

Biyalogorsky, E. and Koenigsberg, O. 2010. Ownership coordination in a channel: incentives, returns and negotiations. *Quantity Market Economics*, 8: 461–490. Available: <https://www.runi.ac.il/yedion/facultypublications/getfile.ashx?username=ebialogorsky&fileType=3&publicationId=631> (Accessed 12 December 2023).

Bizcommunity. 2023. *The importance of deploying omnichannel marketing strategies and why martech can accelerate their adoption*. Available: <https://www.bizcommunity.com/Article/196/423/244566.html#> (Accessed 10 April 2024).

Black, K. U. 2012. *Business statistics for contemporary decision making*. 7th ed. Hoboken: John Wiley.

Blázquez, M. 2014. Fashion Shopping in Multichannel Retail: The Role of Technology in Enhancing the Customer Experience. *International Journal of Electronic Commerce*, 18(4): 97–116.

BMW South Africa. 2023. *BMW Group South Africa Annual Report 2023*. BMW Group South Africa. Available: <https://www.bmwgroup.com/en/report/2023/index.html> (Accessed 09 August 2025).

Bohan, D-M. 2024. *Making the Most of AI in Omnichannel Marketing*. Available: <https://www.bloomreach.com/en/blog/making-the-most-of-ai-in-omnichannel-marketing#:~:text=In%20omnichannel%20marketing%2C%20AI%20plays,on%2C%20and%20automate%20repetitive%20tasks> (Accessed 05 July 2024).

Bonetti, F., Warnaby, G. and Quinn, L. 2019. Augmented Reality and Virtual Reality in Physical and Online Retailing: *A Review, Synthesis and Research Agenda*. Available: chromeextension://efaidnbmninnibpcapjpcglclefindmkaj/https://ualresearchonline.arts.ac.uk/id/eprint/13317/1/AR_and_VR_Conference_%20revised_29%20DECEMBER%202016_final.pdf (Accessed 27 March 2024).

Bordens, K. and Abbott, B. 2017. *Research design and methods a process approach*. McGraw-Hill Education.

Borhauer, S. 2018. *The role of e-commerce in the Fourth Industrial Revolution*. Available: <https://www.digitalcommerce360.com/2018/01/11/role-e-commerce-fourth-industrial-revolution/> (Accessed 05 July 2024).

Borsboom, D., van der Maas, H. L. J., Dalege, J., Kievit, R. A. and Haig, B. D. 2021. Theoretical frameworks in psychology and social sciences. *Annual Review of Psychology*, 72: 1-25.

Bos, J. 2020. *Research Ethics for Students in the Social Sciences*. Utrecht: Springer.

Botha, A. 2019. Innovating for market adoption in the Fourth Industrial Revolution. *South African Journal of Industrial Engineering*, 30(3): 187-198. Available: <http://dx.doi.org/10.7166/30-3-2238> (Accessed 12 March 2024).

Bothma, C. and Machado, R. 2018. *Product and Price Management*. Cape Town: Juta.

Bourg, C., Dewaelheyns, L. and Gijssels, C. 2023. The role of physical retail stores in the digital age: Balancing tradition and innovation. *Journal of Retailing and Consumer Services*, 72: 45-58.

Bouwer, C. 2023. *The past, present and possible future of retail*. Available: <https://www.acumenmagazine.co.za/articles/the-past-present-and-possible-future-of-retail-12360.html> (Accessed 20 December 2023).

Boyd, D.E. and Koles, B. 2019 Virtual Reality and its Impact on B2B Marketing: A Value-in-use Perspective, *Journal of Business Research*, 100: 590–598.

Brace, I. 2018. *Questionnaire design: How to plan, structure and write survey material for effective market research*. 4th ed. London: Kogan Page.

Braun, V. and Clarke, V. 2023. Theoretical approaches in qualitative research. *Qualitative Research in Psychology*, 20(2):10-25.

Bridgeworks, 2017. *Generational analysis: Understanding millennials and Gen Z. Generational Insights*. Available: <https://www.bridgeworks.com> (Accessed 5 January 2025).

Bringsjord, S. 2011. Psychometric artificial intelligence. *Journal of Experimental and Theoretical Artificial Intelligence*, 23(3): 271-277. Available: <https://www.tandfonline.com/doi/epdf/10.1080/0952813X.2010.502314?src=getfr> (Accessed 15 March 2024).

Brown, S. 2021. *Machine learning explained*. Available: <https://mitsloan.mit.edu/ideas-made-to-matter/machine-learning-explained#:~:text=Machine%20learning%20is%20a%20subfield%20of%20artificial%20intelligence%2C%20which%20is,to%20how%20humans%20solve%20problems>. (Accessed 17 March 2024).

Bronnenberg, B.J., Klein, J. and Xu, J. 2024. Grocery shopping patterns in Finland. *Journal of Consumer Research*, 51(1): 112-129.

Browne, M. W. 1993. Structured latent curve models. In Cuadras, C. M. and Rao, C. R. (eds.). *Multivariate analysis: Future directions* (171-197). Amsterdam: Elsevier Science.

Brüggemann, J. and Olbrich, R. 2023. Online grocery shopping: Consumer preferences and behaviours. *International Journal of Retail and Distribution Management*, 51(3): 45-58.

Bryman, A. 2012. *Social research methods*. 4th ed. Oxford: Oxford University Press.

Brynjolfsson, E., Hu, Y. and Rahman, M. S. 2013. Competing in the age of omnichannel retailing. *MIT Sloan Management Review*. 54. 23-29. Available: <https://sloanreview.mit.edu/article/competing-in-the-age-of-omnichannel-retailing/> (Accessed 20 October 2021).

Bughin, J., Doogan, J. and Vetvik, O. J. 2010. A New Way to Measure Word-of-Mouth Marketing, *McKinsey Quarterly*, 2: 84-91.

Built In. 2022. *14 Key IoT In Retail Examples You Need to Know*. Available: <https://builtin.com/articles/iot-in-retail-tech-applications> (Accessed 11 February 2025).

Bu, Y., Parkinson, J. and Thaichon, P. 2021. Digital content marketing as a catalyst for e-WOM in food tourism. *Australasian Marketing Journal (AMJ)*, 29(2): 142-154.

Burns, A. C. and Bush, R. 2014. *Marketing Research*. 7th ed. Essex: Pearson.

Burns, A. C. and Veeck, A. 2020. *Marketing Research*. 9th ed. Essex: Pearson.

Burns, A. C., Veeck, A. and Bush, R. 2020. *Marketing Research*. 9th ed. Essex: Pearson.

Burns, D. J., Gupta, P. B. and Hutchins, J. 2019. Showrooming: The effect of gender. *Journal of Global Scholars of Marketing Science*, 29(1): 99-113.

BusinessTecha. 2022. *Government to give free data to every South African household*. Available: <https://businesstech.co.za/news/broadband/567770/government-to-give-free-data-to-every-south-africanhousehold/> (Accessed 20 December 2023).

BusinessTechb. 2022. *It's now cheaper to have groceries delivered in South Africa than going to the shops: Checkers*. Available: <https://businesstech.co.za/news/trending/573890/its-now-cheaper-to-have-groceries-delivered-in-south-africa-than-going-to-the-shops-checkers/> (Accessed 10 December 2023).

Buttons, P. 2016. Virtual reality in real estate: Revolutionising the house-hunting process. *Real Estate Technology Review*, 12(1): 24-29.

Buwa, A., 2020. *Retail design intent and effects on shopping behaviour in a South African retail store* (Doctoral dissertation, Cape Peninsula University of Technology).

Byrnes, M. E. 2008. *Field sampling methods for remedial investigation*. 2nd ed. London: CRC Press Taylor and Francis Group Education Limited.

Cabrera-Sánchez, J. P., Villarejo-Ramos, Á. F., Liébana-Cabanillas, F. and Shaikh, A. A. 2021. Identifying relevant segments of AI applications adopters—Expanding the UTAUT2's variables. *Telematics and Informatics*, 58: 1-13. Available: <https://doi.org/10.1016/j.tele.2020.101529> (Accessed 16 March 2024).

Cai, Y. J. and Lo. C. K. Y. 2020. Omnichannel management in the new retailing era: a systematic review and future research agenda. *International Journal of Production Economics*, 229: 107729.

Campaign. 2021. *How Braze helped Happy Fresh put their customers first*. Available: <https://www.campaignasia.com/video/how-braze-helped-happyfresh-put-their-customers-first/465959#:~:text=Using%20Braze%2C%20HappyFresh%20built%20customised,availability%20using%20email%20and%20push>. (Accessed 25 June 2022).

Cape Union Mart. 2024. *Cape Union Mart Group Annual Report 2024*. Cape Union Mart. Available: <https://www.capeunionmart.co.za/page/cape-union-mart-group?srsId=AfmBOoqo0G4k7S2s6EVARWLODt9BDzbHOU-fPozRmwXt6EozNUledHu8> (Accessed 09 August 2025).

Carmigniani, J., Furht, B., Anisetti, M., Ceravolo, P., Damiani, E. and Ivkovic, M. 2011. Augmented reality technologies, systems and applications. *Multimedia Tools and Applications*. 51: 341–377.

Carvalho, G., Machado, M. C. and Correa, V. 2023. Omnichannel and consumer and retailer perceived risks and benefits: a review. *International Journal of Retail and Distribution Management*, 52(1). Available: <http://dx.doi.org/10.1108/IJRDM-03-2023-0180> (Accessed 10 August 2025).

Caswell, S. 2000. *Women Enjoy E-Shopping Less Than Men*. Available: <https://www.ecommercetimes.com/story/report-women-enjoy-e-shopping-less-than-men-2179.html> (Accessed 27 December 2024).

CB Insights. 2021. *The Technology Driving the Omnichannel Retail Revolution*. Available: <https://www.cbinsights.com/research/report/omnichannel-retail-technology/> (Accessed 23 December 2023).

Chaffey, D. 2009. *E-Business and E-Commerce Management: Strategy, Implementation and Practice*. 4th ed. Harlow: Pearson Education.

Chandler, N. 2015. Millennials, entrepreneurs and the Hungarian workplace of the future. *Vezetestudomány/Budapest Management Review*. 46(11): 15-24.

Chen, S., Xu, H., Liu, D., Hu, B., Wang, H. 2014. A Vision of IoT: Applications, Challenges and Opportunities with China Perspective. *IEEE Internet of Things Journal*, 1(4): 349-359.

Chen, J. and Bell, PC 2013. The impact of customer returns on supply chain decisions under various channel interactions. *Annual Operation Research*, 206: 59–74. Available: <https://doi.org/10.1007/s10479-013-1326-3> (Accessed 22 December 2022).

Chen, S. and Bell, P. C. 2013. Implementing market segmentation using full-refund and no-refund customer returns policies in a single-channel retail setting. *Journal of Retailing and Consumer Services*, 20(1): 60-68.

Chetioui, Y., Lebdaoui, H. and Chetioui, H. 2021. Factors influencing consumer attitudes toward online shopping: the mediating effect of trust. *EuroMed Journal of Business*, 16(4): 544-563.

- Chetioui, Y., Lebdaoui, H. and Chetioui, F. 2021. Consumer motivations in online grocery shopping. *Journal of Retailing and Consumer Services*, 61: 1-11.
- Cheung, C. M. K. and Lee, M. K. O. 2012. What drives consumers to spread electronic word of mouth in online consumer-opinion platforms? *Decision Support Systems*, 53(1): 218–225.
- Childers, T. L., Carr, C. L., Peck, J. and Carson, S. 2001. Hedonic and utilitarian motivations for online retail shopping behaviour. *Journal of Retailing*, 77(4): 511–535.
- Cialdini, R. B. 2001. Harnessing the Science of Persuasion. *Harvard Business Review*.
- Cialdini, R. B. and Goldstein, N. J. 2004. Social influence: compliance and conformity. *Annual Review of Psychology*, 55(1): 591-621. Available: <https://doi.org/10.1146/annurey.psych.55.090902.142015> (Accessed 23 December 2024).
- Cikes, D. 2020. *Top 8 retail trends to watch in 2020*. Available: <https://www.cnbc.com/africa/financial/2020/01/13/op-ed-here-are-8-retail-trends-to-watch-in-2020/> (Accessed 03 June 2020).
- Chimboza, T. and Smith, E. 2024. How Does Compliance with the Protection of Personal Information Act (POPI Act) Affect Organisations in South Africa? *African Conference on Information Systems and Technology*. 19. Available: <https://digitalcommons.kennesaw.edu/acist/2024/presentations/19> (Accessed 11 August 2025).
- Chipp, K., Ismail, Z. and Meiring, E. 2017. *E-commerce: Dynamic markets perspective*. 2nd ed. Pretoria: Van Schaik.
- Chitty, W., Barker, N., Valos, M., Shimp, T. A. and Chitty, B. 2011. *Integrated marketing communications*. Cengage Learning.
- Chopra, S. and Meindl, P. 2019. *Supply Chain Management: Strategy, Planning and Operation*. 7th ed. Upper Saddle River, NJ: Pearson.
- CitiXsys America's Incorporation. 2020. *South African shopping trends: Connected retail wins customers*. Available: <https://ivend.com/south-african-shopping-trends-connected-retail-wins-customers/> (Accessed 03 June 2020).
- Claudia, I. 2012. Perceived Risk when Buying Online. *Economics Series*, 22(2): 63-73.
- Cloete, S. and Mugobo, V. 2021. Barriers to online grocery shopping in South Africa. *South African Journal of Business Management*, 52(1): 123-134.
- Clow, K. E. and James, K. E. 2014. *Marketing Research Principles: Putting Research into Practice*. London: Sage.

Collin-Lachaud, I. and Diallo, M. F. 2021. Smartphone use during shopping and store loyalty: the role of social influence. *International Journal of Retail and Distribution Management*, 49(5): 678-697. Available: <https://doi.org/10.1108/IJRDM-03-2020-0109> (Accessed 06 July 2024).

Collis, J. and Hussey, R. 2013. *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*. London: Palgrave Macmillan.

COMSCORE. 2014. *UPS pulse of the online shopper*. Available: <https://www.ups.com/media/en/2014-UPSPulse-of-the-Online-Shopper.pdf> (Accessed 12 December 2023).

Cooper, D. R. 2019. *Business research. A guide to planning, conducting and reporting your study*. London: Sage.

Cooper, D. R. and Schindler, P. S. 2014. *Business Research Methods*. 12th ed. New York: McGraw-Hill Education.

Costs e Silva, S., Rocha, T. V. and da Silva, L. 2019. Understanding omnichannel shopping behaviour: A consumer-centred approach. *Journal of Retailing and Consumer Services*, 51: 1-8.

Cotarelo, M., Fayos, T., Calderon, H. and Molla, A. 2021. Omnichannel intensity and shopping value as key drivers of customer satisfaction and loyalty. *Sustainability*, 13(11): 5961.

Cowan, P. 2015. *Qantas to offer virtual reality headsets in first class*. Available: <https://www.itnews.com.au/news/qantas-to-offer-virtual-reality-headsets-in-first-class-399828> (Accessed 23 December 2024).

Crano, W. D., Brewer, M. B. and Lac, A. 2015. *Principles and methods of social research*. 3rd ed. New York: Routledge.

Creswell, J. W., Ebersohn, L., Elof, I., Ferreira, R., Ivankova, N. V., Jansen, J. D., Nieuwenhuis, J., Pietersen, J. and Plano Clark, V. L. 2020. *First steps in research*. 3rd ed. Pretoria: Van Schaik.

Creswell, J. W. 2014. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. 4th ed. Thousand Oaks, CA: Sage.

Cummins, S., Peltier, J. W. and Dixon, A. 2016. Omni-channel research framework in the context of personal selling and sales management: A review and research extensions. *Journal of Research in Interactive Marketing*, 10(1): 2-16. Available: <https://doi.org/10.1108/JRIM-12-2015-0094> (Accessed 20 December 2023).

Curtis, E. A, Comiskey C, Dempsey O. 2016. Importance and use of correlational research. *Nurse Res*, 23(6): 20-5. Available: <https://doi:10.7748/nr.2016.e1382.PMID:27424963> (Accessed 20 December 2024).

Dabholkar, P. and Sheng, X. 2012. E-Commerce Returns: A Theoretical Framework and Empirical Investigation, *Journal of Business Research*, 65(3): 345-352.

D'Alessandro, S., Winzar, H., Lowe, B. and Zikmund, W. 2020. *Marketing Research*. 5th ed. Melbourne: Cengage.

Dad, A. M., Barry, D. and Rehman, A. A. 2016. 3D Servicescape Model: Atmospheric Qualities of Virtual Reality Retailing. *International Journal of Advanced Computer Science and Applications*. 7(2): 25-38.

Dahlberg, T., Guo, J. and Ondrus, J. 2015. A Critical Review of Mobile Payment Research, *Electronic Commerce Research and Applications*, 14(5): 343-357.

Dan, Y., Taihai, D. and Ruiming, L. 2007. Study of Types, Resources and Their Influential Factors of Perceived Risks in Purchase Online. *Journal of Dalian University of Technology*, 28 (2), 13-19.

Daniel, J. 2023. *How Pick n Pay's migration to the cloud is paying off*. Available: <https://www.cio.com/article/462862/how-pick-n-pays-migration-to-the-cloud-is-paying-off.html> (Accessed 11 August 2025).

Dangi, K., Kaur, A. and Jham, J. 2019. Structural Equation Modelling: A powerful antibiotic. *Journal of Business Thought*, 10:18-23.

Datt, S. and Chetty, P. 2016. *Defining a Research Strategy*. Project Guru. <https://www.projectguru.in/publications/research-strategy-business-studies/> (Accessed 20 July 2024).

Davies, N. 2021. *Omnichannel vs multi-channel: Key differences you need to know*. Available: <https://gettalkative.com/info/omnichannel-vs-multichannel-key-differences> (Accessed 20 December 2023).

Davis, H. L. 1976. Decision-making within the household. *The Journal of Consumer Research*, 2(4): 241-260.

Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. 1989. User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8): 982-1003.

Davis, F. D. 1989. Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, 13(3): 319-340.

Derbaix C. 1983. Perceived risk and risk relievers: an empirical investigation. *Journal of Economic Psychology*, 3:19– 38.

Deloitte. 2024. *South Africa's AI Readiness Report*. Johannesburg: Deloitte Consulting. Available: <https://www.deloitte.com/za/en/Industries/technology/about/AI-Readiness-for-Government.html> (Accessed 09 August 2025).

Deloitte. 2023. *Future of Payments in South Africa*. Deloitte. Available: <https://www.deloitte.com/za/en/Industries/financial-services/analysis/the-future-of-payments-in-south-africa.html> (Accessed 10 August 2025).

Deloitte. 2017. *Future-proofing your retail business*. Available: <https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/ca-en-cip-Deloitte-FutureProofingYourRetailBusiness-AODA.pdf> (Accessed 19 March 2024).

Deloitte. 2018a. *Global Powers of Retailing 2018*. Available: <https://www2.deloitte.com/content/dam/Deloitte/at/Documents/about-deloitte/global-powers-of-retailing-2018.pdf> (Accessed 12 December 2023).

Deloitte. 2019. *"Future consumer" Series Omni-channel transformation begins by grasping the key to consumer mentalities*. China: Deloitte. Available: <https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/consumer-business/deloitte-cn-consumer-omnichannel-transformation-begins-by-grasping-the-key-to-consumer-mentalities-en-200320.pdf> (Accessed 02 July 2020).

Deloitte. 2019. *The Fourth Industrial Revolution is here - are South African executives ready?* Available: <https://www2.deloitte.com/content/dam/Deloitte/za/Documents/Consumer Industrial Products/Industry%2040%20-%20SA%20Findings.pdf%20-%2015%20June%202018.pdf>. (Accessed 10 April 2024).

Dedi, D., 2023. E-Commerce Online Buying and Selling Transactions in the Perspective of Islamic Law. *International Journal of Artificial Intelligence Research*, 6(1.2).

Denis, D. J. 2019. *SPSS data analysis for univariate, bivariate and multivariate statistics*. Hoboken: John Wiley and Sons.

Department of Trade and Industry. 2018. *Industrial Policy Action Plan 2018/19 - 2020/21*. Available: <https://www.thedtic.gov.za/wp-content/uploads/publication-IPAP.pdf> (Accessed 28 March 2023).

Desmichel, P. and Kocher, B. 2020. Physical store atmospherics and consumer behaviour: Insights from the brick-and-mortar context. *Retail Management Review*, 25(2): 123-139.

De Vaus, D. A., 2013. *Surveys in Social Research*. 6th ed. London: Routledge.

Dhanapala, S., Vashub, D. and Subramaniam, T. 2015. Perceptions on the challenges of online purchasing: a study from "baby boomers", generation "X" and generation "Y" point of views. *Contadina y Administration*, 60(1): 107-132. Available: <http://dx.doi.org/10.1016/j.cya.2015.08.003> (Accessed on 03 July 2024).

Dharmesti, M., Dharmendra, N. and Morgan, K. 2021. Variances in consumer behaviours across contexts. *Journal of Marketing Studies*, 48(2): 45-60.

Dhebar, A. 2013. Toward a Compelling Customer Touchpoint Architecture. *Business Horizons*, 56(2): 99–205. Available: <https://doi.org/10.1016/j.bushor.2012.11.004> (Accessed 12 December 2023).

Dholakia, U. M., Dholakia, R. R., Fritz, W. and Mundorf, N. 2010. Shoppers and sales: A systematic social psychological perspective. *Journal of Retailing*, 86(1): 5-23.

Dhotre, M. 2010. *Channel Management and Retail Marketing*. Revised edition. Himalaya

Dictionary.com. 2022. *Bias*. Available:

<https://www.google.com/search?q=online+dictionary&og=online+di&aqs=chrome.69i57j0i20i263i512i2j0i512j0i433i512j0i512j0i433i512j0i512i3.4736j0j15&sourceid=chrome&ie=UTF-8#dobs=bias> (Accessed 16 December 2022).

Dictionary.com. 2023. *Retail*. Available: <https://www.dictionary.com/browse/retail> (Accessed 20 December 2023).

Dietz, T. and Kalof, L. 2009. *Introduction to social statistics*. West Sussex: Wiley-Blackwell.

Digiteum. 2024. *How to Use Internet of Things (IoT) in the Retail Industry: Examples, Use Cases and Applications*. Available: <https://www.digiteum.com/internet-of-things-retail-industry/> (Accessed 19 March 2024).

Dixit, P. 2022. *The Rise of South African eCommerce: The Growth and the Future*. Available: <https://dataweave.com/blog/south-african-ecommerce> (Accessed 27 March 2024).

Dixon, J. C., Singleton, R. A. and Straits, B. C. 2016. *The process of social research*. New York: Oxford University Press.

Dobrev, D. 2012. *A definition of artificial intelligence*. arXiv preprint arXiv:1210.1568.

Dommermuth, W. P. 2011. *The use of sampling in marketing research*. New York: Marketing City Press.

Donnelly, C. and Scaff, R. 2013. *Who are the Millennial shoppers and what do they really want?* Accenture. Available: <https://www.accenture.com/caen/insight-outlook-who-aremillennial-shoppers-what-dothey-really-want-retail> (Accessed 26 December 2024).

Dubey, U. K. B. and Kothari, D. P. 2022. *Research methodology: techniques and trends*. Oxon: CRC Press Publishing House.

Du, Y., Wang, C., Chen, X. and Zhao, J. 2018. Formal disappointment theory in omnichannel retailing. *Journal of Retailing*, 94(3): 23-35.

East, R., Hammond, K. and Lomax, W. 2017. Measuring the Impact of Positive and Negative Word of Mouth, *International Journal of Research in Marketing*, 25(3): 154-166.

Ecentric Payment Systems. 2023. *Securing the future of payments: What businesses need to know about payment security*. Available: <https://www.bizcommunity.com/Article/196/518/243778.html> (Accessed 27 March 2024).

Economipedia. 2024. *Industrial revolution*. Available: <https://economipedia.com/definiciones/industrial-revolution.html> (Accessed 10 August 2024).

Efron, S. E. and David, R. 2019. *Writing the literature review. A practical guide*. New York: The Guilford Press.

Eggenschwiler, M., Linzmajer, M., Roggeveen, A. L. and Rudolph, T. 2024. Retailing in the metaverse: A framework of managerial considerations for success. *Journal of Retailing and Consumer Services*, 79: 1-17. Available: <https://doi.org/10.1016/j.jretconser.2024.103791> (Accessed 27 March 2024).

Ehiane, S. O., Khan, S., Khan, A. and Sesa, L. L. 2024. COVID-19 pandemic and Fourth Industrial Revolution (4IR): Reflection on the challenges and opportunities in South Africa. *Journal of Emergency Management*, 22(3), 291-300.

Elkhatib, Y., Killick, R., Mu, M. and Race, N. 2014. Just browsing? Understanding user journeys in online, T.V. Orlando, Florida: *Proceedings of the 22nd ACM International Conference on Multimedia*. Available: <http://dx.doi.org/10.1145/2647868.2654980> (Accessed 12 December 2023).

Eksteen, C., & Humbani, M. 2021. Understanding Proximity Mobile Payments Adoption in South Africa: A Perceived Risk Perspective. *Journal of Marketing and Consumer Behaviour in Emerging Markets*, 2(13), 4–21.

Emon, M. M. H. and Nahid, M. H. 2023. Factors Affecting Sustainable E-Commerce Adoption: Empirical Evidence from Bangladeshi SMEs. *Corporate Sustainable Management Journal*, 1(1), 32–36. Available: <https://doi.org/10.26480/csmj.01.2023.32.36> (Accessed 07 July 2024).

Ernst and Young. 2020. Digitalisation key to helping Asian retailers emerge from Covid-19. *Retail News Asia*, June 17. Available: <https://www.retailnews.asia/digitalization-key-to-helping-asian-retailers-emerge-from-covid-19/> (Accessed 22 June 2022).

Euromonitor GMID. 2012. *Devices and trends in omnichannel retailing. Global Market Information Database*. Available: <https://www.euromonitor.com> (Accessed 5 January 2025).

Everitt, B. S. and Skrondal, A. 2010. *The Cambridge Dictionary of Statistics*. 4th ed. New York, Cambridge University Press.

Fan, X., Z. Chai, N. Deng and Dong, X. 2020. Adoption of Augmented Reality in Online Retailing and Consumers' Product Attitude: A Cognitive Perspective. *Journal of Retailing and Consumer Services*, 53, 2020, p. 101986. Available: <http://dx.doi.org/10.1016/j.jretconser.2019.101986> (Accessed 18 March 2024).

Fang, S. 2023. Personalised Care: CVS's Transformation in Data Analytics. *Harvard Business School Digital Initiative*. Available: <https://d3.harvard.edu/platform->

[digit/submission/personalized-care-cvss-transformation-in-data-analytics/](#) (Accessed 20 March 2024).

Farah, M. F., Ramadan, Z. B. and Harb, D. H. 2019. The examination of virtual reality at the intersection of consumer experience, shopping journey and physical retailing. *Journal of Retailing and Consumer Services*, 48: 136-143. Available: <https://doi.org/10.1016/j.jretconser.2019.02.016> (Accessed 27 March 2024).

FasterCapital. 2024. *The importance of secure online transactions*. Available: <https://fastercapital.com/topics/the-importance-of-secure-online-transactions.html> (Accessed 30 July 2024).

Featherman, M. S. and Pavlou, P. A., 2003. Predicting e-services adoption: A perceived risk facets perspective. *International Journal of Human-Computer Studies*, 59(4): 451–474.

Feinberg, F. M., Kinnear, T. C. and Tylor, J. R. 2013. *Modern marketing research: concepts, methods, cases*. 2nd ed. Mason, OH: Cengage.

Fiestas, J. C. and Tuzovic, S. 2021. Mobile assisted showroomers: understanding their purchase journey and personalities, *Journal of Retailing and Consumer Services*, 58: 102280.

Feng, W., Zhu, Q., Zhuang, J. and Yu, S. 2018. An expert recommendation algorithm based on Pearson correlation coefficient and FP-growth. *Cluster Computing*, 1-12. Available: <https://doi.org/10.1007/s10586-017-1576-y> (Accessed on 05 July 2024).

Ferrell, O. C., Niininen, O., Lukas, B., Schembri, S. and Pride, W. M. 2014. *Marketing principles*. 2nd ed. Melbourne: Cengage Learning.

Festinger, L. 1957. *A theory of cognitive dissonance*. Stanford University Press.

Field, A. 2009. *Discovering statistics using SPSS*. 3rd ed. London and New York: Sage.

Fingent. 2024. *Augmented reality in retail: use cases and business benefits*. (blog). Available: <https://www.fingent.com/blog/augmented-reality-in-retail-reimagining-the-future-of-shopping/#:~:text=Augmented%20Reality%20allows%20brands%20to,outfit%20in%20a%20physical%20store> (Accessed 15 March 2024).

Finstad, K. 2010. Response interpolation and scale sensitivity: Evidence against 5-point scales, *Journal of Usability Studies*, 5(3): 104–110. Available: <https://uxpajournal.org/response-interpolation-and-scale-sensitivity-evidence-against-5-point-scales/> (Accessed 10 August 2025).

FinMark Trust. 2021. *Finscope South Africa Consumer Survey 2021*. FinMark Trust. Available: <https://www.fsca.co.za/Documents/FinScope%20SA%20Consumer%202021%20Survey%20%20Results%20Prepared%20for%20FSCA.pdf> (Accessed 10 August 2025).

Flischman, P. 2022. How cloud technology is changing business in SA. Available: <https://info.axiz.com/how-the-cloud-is-changing-business-in-sa/> (Accessed 11 August 2025).

Fitch Solutions. 2020. *South Africa Consumer and Retail Report – Q3 2020*. London: Fitch Solutions. Available: <https://search.proquest.com/docview/2413215152?accountid=10612&pg-origsite=summon> (Accessed 06 July 2020).

Flavin, R. 2022. *Re-evaluating the in-store shopper experience*. Available: <https://v360.ie/re-evaluating-the-in-store-shopper-experience/> (Accessed 25 June 2022).

Flick, U. 2020. *Introducing research methodology: thinking your way through the research project*. London: Sage.

Følstad, A. and Skjuve, M. B. 2019. Chatbots for customer service: user experience and motivation. *Conference proceeding*. Available: <http://dx.doi.org/10.1145/3342775.3342784> (Accessed 04 April 2024).

Forbes. 2021. *Predicting the Future of Demand: How Amazon Is Reinventing Forecasting with Machine Learning*. Available: <https://www.forbes.com/sites/amazonwebservices/2021/12/03/predicting-the-future-of-demand-how-amazon-is-reinventing-forecasting-with-machine-learning/> (Accessed 01 April 2025).

Fornell, C. and Larcker, D. 1981. Evaluating structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, 18(1): 39-50.

Forsythe, S., Liu, C., Shannon, D. and Gardner, L.C. 2006. Development of a scale to measure the perceived benefits and risks of online shopping. *Journal of Interactive Marketing*, 20(2): 55–75.

Fortes, N. and Rita, P. 2016. Privacy concerns and online purchasing behaviour: Towards an integrated model, *European Research on Management and Business Economics* 22(3), 167-176. <https://doi.org/10.1016/j.iedeen.2016.04.002> (Accessed 09 July 2024).

Fortinet.com. 2024. *Retail Cybersecurity Statistics Not to Be Ignored*. Available: <https://www.fortinet.com/solutions/industries/retail/retail-cybersecurity-statistics> (Accessed 04 August 2024).

Forthun, I., Strandberg-Larsen, K. and Wilcox, A. J. 2018. Parental socioeconomic status and risk of cerebral palsy in the child: Evidence from two Nordic population-based cohorts. *International Journal of Epidemiology*, 47(4): 1298–1306.

Fox, E. and Valodia, I. 2019. *Neglected challenge of the 4IR debate*. Available: <https://www.businesslive.co.za/bd/opinion/2019-07-22-neglected-challenge-of-the-4ir-debate/> Accessed 20 March 2020.

Foxall, G. R. 2001. Foundations of consumer behaviour analysis. *Marketing Theory*, 1(2): 165-199.

Foxall, G. R. 2003. *Consumer Psychology in Behavioural Perspective*. London: Routledge.

Fraser, L. 2023. *Huge Checkers Sixty60 update launches in South Africa*. Available: <https://businesstech.co.za/news/lifestyle/800828/huge-checkers-sixty60-update-launches-in-south-africa/> (Accessed 10 August 2025).

Frazer, M. and Stiehler, B. 2014. Omnichannel Retailing: The Merging of the Online and Offline Environment. *Global Conference on Business and Financial Proceedings*, 9(1), 655657.

Fuchs, P., Moreau, G. and Guitton, P. 2011. *Virtual reality: concepts and technologies*. CRC Press.

Fuchs, C. and Schreier, M. 2010. Customer Empowerment in New Product Development, *Journal of Marketing*, 74(5): 124-140.

Fülöp, J. 2005. Introduction to decision-making methods. *International Journal of Business and Management*, 9(1): 1-6.

Gajsek, D. 2017. *Marketing with Branded Virtual Reality Headsets*. Available: <https://medium.com/@dgajsek/marketing-with-branded-virtual-reality-headsets-352e990780ec> (Accessed on 18 March 2024).

Gallino, S. and Moreno, A. 2014. Integration of online and offline channels in retail: The impact of sharing reliable inventory availability information. *Management Science*, 60(6): 1434–1451.

Galipoglu, E., Kotzab, H., Teller, C., Yumurtaci Hüseyinoglu, I. Ö. and Pöppelbuß, J. 2018. Omni-channel retailing research—State of the art and intellectual foundation. *International Journal of Physical Distribution and Logistics Management*, 48(4): 365–390. Available: <https://doi.org/10.1108/IJPDLM-10-2016-0292> (Accessed 18 August 2024).

Garbarino, E. and Strahilevitz, M. 2004. Gender differences in the perceived risk of buying online and the effects of receiving a site recommendation, *Journal of Business Research*, 57, 768-775.

Gefen, D., Karahanna, E. and Straub, D. W. 2003. Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1): 51–90.

Gensler, S., Völckner, F., Liu-Thompkins, Y. and Wiertz, C. 2013. Managing Brands in the Social Media Environment, *Journal of Interactive Marketing*, 27(4): 246-256.

Gestaldt Consulting Group. 2023. *From Brick-and-Mortar to E-commerce: Exploring the Evolution of the Digital Economy*. Available: <https://www.linkedin.com/pulse/from-brick-and-mortar-e-commerce-exploring-u8jif/> (Accessed 03 July 2024).

Ghazali, E. M., Mutum, D. S., Chong, J. H. and Nguyen, B. 2018. Do consumers want mobile commerce? A closer look at M-shopping and technology adoption in Malaysia. *Asia Pacific Journal of Marketing and Logistics*, 30(4):1064-1086.

Ghazali, E., Mutum, D. S., Chong, J. H. and Nguyen, B. 2024. Mobile commerce: Adoption and adaptation by traditional retailers. *Journal of Retailing and Consumer Services*, 76: 101-118.

Gibson, B. J., C. C. Defee and R. Ishfaq. 2015. The State of the Retail Supply Chain: Essential Findings of the Fifth Annual Report. Auburn: Retail Industry Leaders Association and Auburn University. Available: https://www.researchgate.net/publication/274698612_2015_Annual_State_of_Retail_Supply_Chain_Report#fullTextFileContent (Accessed December 18 2023).

Gilbert, P. B., Juraska, M. and Decamp, A. C. 2017. Basis and statistical design of the passive HIV-1 antibody mediated prevention (AMP) test-of-concept efficacy trials. *State Communication Infect Dis*, 9(1): 1-26.

Gill, K.S. 2016. Artificial super intelligence: beyond rhetoric. *AI and Society*, 31: 137-143. Available: <https://link.springer.com/article/10.1007/s00146-016-0651-x#citeas~:text=DOI-,https%3A//doi.org/10.1007/s00146%2D016%2D0651%2Dx,-Share%20this%20article> (Accessed 16 March 2024).

Gillward, A. 2020. *Digital equality: South Africa still has a long way to go*. Available: <https://theconversation.com/digital-equality-south-africa-still-has-a-long-way-to-go-131864> (Accessed 20 December 2023).

Gao, F. and Su, X. 2017. Omnichannel retail operations with buy-online-and-pick-up-in-store. *Management Science*, 63 (8): 2478-2492. Available: doi:10.1287/mnsc.2016.2473 (Accessed 26 December 2024).

Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R. and Singh, R. 2016. Social media marketing efforts of luxury brands: Influence on brand equity and consumer behaviour. *Journal of Business Research*, 69(12): 5833–5841.

Goldberg, J. 2021. 2020: *Not quite retail apocalypse, but great for e-commerce*. Forbes. Available: <https://www.forbes.com/sites/jasongoldberg/2021/02/19/2020-not-quite-retail-apocalypse-but-great-for-e-commerce/?sh=37a7850a37c4> (Accessed June 23 2022).

Gomez, R. 2021. *80% of consumers agree brand awareness makes them more likely to buy on social*. Available: <https://sproutsocial.com/insights/consumer-behavior-social-commerce/> (Accessed 09 July 2024).

Google. 2023. *Virtually try on clothes with a new AI shopping feature*. Available: <https://blog.google/products/shopping/ai-virtual-try-on-google-shopping/> (Accessed 31 January 2024).

Gopakumar, P. and Dananjayan, S. 2023. Value perception in online grocery shopping. *Journal of Consumer Studies*, 39(2): 65-78.

Gordon, L. A. and Loeb, M. P. 2002. The economics of information security investment. *ACM Transactions on Information and System Security (TISSEC)*, 5(4): 438–457.

Görsch, D. 2000. The impact of hybrid channel structures on the customer purchase process: A research outline. In Proceedings of IRIS 123 Laboratorium for Interaction Technology. Available: https://www.researchgate.net/publication/229024455_The_impact_of_hybrid_channel_structures_on_the_customer_purchase_process_a_research_outline (Accessed December 19 2023).

Govender, V. 2019. *Overcoming infrastructure challenges is key to 4IR success*. Available: <http://www.dfafrica.co.za> (Accessed 03 January 2020).

Gouveia, F. D. and São Mamede, H. 2022. Digital Transformation for SMEs in the Retail Industry. *Procedia Computer Science*, 2: 671-681.

Grabango. 2023. *ALDI Launches “ALDigo” Checkout-free Grocery Shopping Powered by Grabango*. Available: <https://www.grabango.com/aldi-launches-aldigo-checkout-free-grocery-shopping-powered-by-grabango/> (Accessed 04 May 2024).

Gratton, S-J. 2024. *The rise of robotics in retail*. Agritech future publications.

Gratton, L. 2024. Applied robotics in retail: Enhancing efficiency and customer experience. *Retail Innovation Journal*, 28(1): 6-14.

Gravetter, F. J. and Forzano, L. B. 2016. *Research methods for the behavioural science*. 5th ed. Stamford: Cengage learning.

Gray, D. E. 2020. *Doing research in the business world*. 2nd ed. London: Sage.

Grewal, D. 2004. Retail Branding and Customer Loyalty. New York: Elsevier. Available: <http://dx.doi.org/10.1016/j.jretai.2004.10.001> (Accessed 18 December 2023).

Grewal, D., Roggeveen, A. L. and Nordfält, J. 2016. Roles of retailer tactics and customer-specific factors in shopper marketing: Substantive, methodological and conceptual issues. *Journal of Business Research*, 69(3), 1009-1013. <https://doi.org/10.1016/j.jbusres.2015.08.012> (Accessed 31 January 2025).

Grewal, D., Roggeveen, A.L. and Nordfält, J. 2020. The future of retailing. *Journal of Retailing*, 96(1): 86–95.

Groumpos, P. P. 2021. A Critical Historical and Scientific Overview of all Industrial Revolutions. *IFAC-PapersOnLine*, 54(13): 464-471. Available: <https://doi.org/10.1016/j.ifacol.2021.10.492> (Accessed 10 August 2024).

Grzybowska, A. 2016. M-commerce in Poland: Trends and consumer behaviour. Kupuję Mobilnie 2016 Report: 14-20.

GSMA. 2023. *The Mobile Economy Sub-Saharan Africa 2023*. London: GSMA: 13–14. Available: <https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-economy/sub-saharan-africa/> (Accessed 09 August 2025).

Gulati, R. and Garino, J. 2000. Get the Right Mix of Bricks and Clicks. *Harvard Business Review*, 78(3): 107-114. Available: <https://hbr.org/2000/05/get-the-right-mix-of-bricks-and-clicks> (Accessed 12 December 2023).

- Guo, B., Aveyard, P., Fielding, A. and Sutton, S. 2009. The Factor Structure and Factorial Invariance for the Decisional Balance Scale for Adolescent Smoking. *International Journal of Behavioural Medicines*, 16: 158–163. Available: <https://doi.org/10.1007/s12529-008-9021-5> (Accessed 19 August 2024).
- Gupta, P. 2020. Multi-channel retailing: A comprehensive review. *International Journal of Retail and Distribution Management*, 48(2): 132-148.
- Gupta, S. and Arora, N. 2021. Credit Card Payments in E-commerce: A Case Study, *International Journal of Retail and Distribution Management*, 49(3): 215-230.
- Habib, M. and Hamadneh, A. 2021. The role of perceived value in online grocery shopping. *Journal of Retailing and Consumer Services*, 62: 1-8.
- Haeri, Z. 2023. *Tomorrow's leading brands are busy writing the omnichannel rulebook*. Available: <https://www.bizcommunity.com/Article/196/423/237782.html> (Accessed 27 March 2024).
- Hair, J. F., Page, M. and Brunsveld, N. 2019. *Essentials of Business Research Methods*. New York: Routledge.
- Hagberg, J., Sundstrom, M. and Egels-Zanden, N. 2016. The digitalisation of retailing an exploratory framework. *International Journal of Retail and Distribution Management*, 44(7): 694-712. Available: https://www.researchgate.net/publication/274376739_Digitalization_of_retailing_Beyond_e-commerce#fullTextFileContent (Accessed 05 July 2024).
- Hague, P. N., Hague, N. and Morgan, C. A. 2013. *Market research in practice: how to get greater insight from your market*. 2nd ed. Philadelphia: Kogan Page Publishers.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E. and Tatham, R. L. 2007. 6th ed. *Multivariate Data Analysis*. Upper Saddle River, New Jersey: Prentice Hall.
- Hair, J. F., Page, M. and Brunsveld, N. 2019. *Essentials of business research methods*. 4th ed. Routledge.
- Hall, J. 2008. *Cross-sectional survey design*. In: Lavrakas, P.J. *Encyclopaedia of Survey Research Methods* (online). Available: <http://www.srmo.sagepub.com> (Accessed 27 February 2022).
- Hameli, K. 2018. A Literature Review of Retailing Sector and Business Retailing Types. *ILIRIA International Review*, 8(1). Available: <http://dx.doi.org/10.21113/iir.v8i1.386> (Accessed 15 December 2023).
- Hammersley, M. 2013. *What is qualitative research?* London: Bloomsbury.
- Hanjun, K., Jaemin, J., JooYoung, K. and Sung Wook, S. 2004. Cross-Cultural Differences in Perceived Risk of Online Shopping, *Journal of Interactive Advertising*, 4(2): 20-29.

Hancock, G. R., Stapleton, L. M. and Mueller, R. O. The reviewer's guide to quantitative methods in the social sciences. 2nd ed. New York: Routledge.

Hansell, S. 2002. A retailing mix: on internet, in print and in store. The New York Times, December 14. Available: <https://www.nytimes.com/2002/12/14/business/a-retailing-mix-on-internet-in-print-and-in-store.html> (Accessed 12 December 2023).

Hansen, R. and Sia, S. K. 2015. Hummel's digital transformation toward omnichannel retailing: key lessons learned. *MIS Quarterly Executive*, 14(2): 51-66.

Harmon-Jones, E. and Mills, J. 1999. Cognitive dissonance: Progress on a pivotal theory in social psychology. *American Psychological Association*.

Harris, P., Riley, F.D.O. and Hand, C. 2018. Understanding multichannel shopper journey configuration: An application of goal theory. *Journal of Retailing and Consumer Services*, 44: 108-117. Available: <https://doi.org/10.1016/j.jretconser.2018.06.005> (Accessed 05 July 2024).

Harshitha, M. 2024. Evaluating the shift: a comprehensive review of online shopping versus traditional retail experiences. *International Journal for Innovative Research in Multidisciplinary Field*, 10(2): 155-159. Available: <https://DOIs:10.2015/IJIRMF/202402018> (Accessed 03 July 2024).

Hassan, M., Kouser, R. and Malik, M. 2021. Predicting consumer intentions using TAM in omnichannel retailing. *Journal of Marketing Studies*, 48(1): 15-29.

Hawkins, D. I. and Mothersbaugh, D. L. 2019. *Consumer Behaviour: Building Marketing Strategy*. 14th ed. New York: McGraw-Hill Education.

Hayes, A. and Kelliher, F. 2022. Exploring the Role of Demographics in Shaping Omni-Channel Retailing. *International Journal of Innovative Science and Research Technology*, 7(1). Available: <https://ijisrt.com/assets/upload/files/IJISRT25JAN1048.pdf> (Accessed 01 February 2025).

He, J., Chen, X., Li, X. and Zhang, Y. 2020. Mobile payments and consumer behaviour in traditional retail settings. *Journal of Retailing and Consumer Services*, 55: 120-135.

He, F. and Shen, Z.M. 2015. Modelling taxi services with smartphone-based e-hailing applications. *Transportation Research Part C*, 58:93-106.

Healey, J. F. 2012. *The essentials of statistics: a tool for social research*. 3rd ed. Belmont:

Herhausen, D., Kleinlercher, K., Verhoef, P. C., Emrich, O. and Rudolph, T. 2019. Loyalty formation for different customer journey segments. *Journal of Retailing*, 95(3): 9-29. Available: <https://doi.org/10.1016/j.jretai.2019.05.001> (Accessed 18 December 2023).

Herhausen, D., Binder, J., Schoegel, M. and Herrmann, A. 2015. Integrating bricks with clicks: Retailer-level and channel-level outcomes of online-offline channel integration. *Journal of Retailing*, 91(2): 310-325.

- Hermann, M., T. Pentek and B. Otto. 2016. Design Principles for Industrie 4.0 Scenarios. 2016 49th Hawaii International Conference on System Sciences (HICSS), Koloa, HI: 3928–3937. Available: <https://doi.org/10.1109/HICSS.2016.488> (Accessed 15 March 2024).
- Herhausen, D., J. Binder, M. Schoegel and A. Herrmann. 2015. Integrating Bricks with Clicks: Retailer-Level and Channel-Level Outcomes of Online-Offline Channel Integration. *Journal of Retailing*, 91(2): 309325.
- Hilken, T., Heller, J., Chylinski, M., Keeling, D. I., Mahr, D. and de Ruyter, K. 2018. Making omnichannel an augmented reality: The current and future state of the art. *Journal of Researching Interactive Marketing*, 12(4): 509–523. Available: <https://doi.org/10.1108/JRIM-01-2018-0023> (Accessed 18 August 2024).
- Hinton, P.R., McMurray, I. and Brownlow, C. 2014. SPSS Explained. 2nd ed. London: Routledge. Available: <https://doi.org/10.4324/9781315797298> (Accessed 19 August 2024).
- Ho, S. and Hoosen, F. 2023. *Retailers, are you keeping up with the evolution of consumer behaviour?* Available: <https://www.bizcommunity.com/Article/196/179/239743.html> (Accessed 27 March 2024).
- Holmes, A., Byrne, A. and Rowley, J. 2014. Mobile devices and consumer behaviour in retail. *Journal of Retailing and Consumer Services*, 21(4): 460-470.
- Hooper, D., Coughlan, J. and Mullen, M. R. 2008. Structural Equation Modelling: Guidelines for Determining Model Fit. *Electronic Journal of Business Research Methods*, 6(1): 53-60.
- Horton R.L. 1976. The structure of decision risk: some further progress. *Journal of Academy of Marketing Science*, 4:94–706.
- Hossain, S., Chisty, S., Hargrove, D. L. and Amin, N. M. A. 2021. Role of Internet of Things (IoT) in Retail Business and Enabling Smart Retailing Experiences. *Asian Business Review*, 11(2): 75-80. Available: <https://doi.org/10.18034/abr.v11i2.579> (Accessed 19 March 2024).
- Hossain, M. A. and Zhou, X. 2018. Facilitating conditions for online grocery shopping adoption. *Technological Forecasting and Social Change*, 135: 1-13.
- Howard, V. 2021. History of department stores: introduction. *History of Retailing and Consumption*, 7(1): 1–8. Available: <https://doi.org/10.1080/2373518X.2021.1980285> (Accessed 01 July 2024).
- Hoyer, W. D., MacInnis, D. J. and Pieters, R. 2013. *Consumer Behaviour*. 6th ed. Mason, OH: South-Western Cengage Learning.
- Hox, J. J. and Bechger, T. M. 1998. An introduction to structural equation modelling. *Family Science Review*, 11: 354-373.
- Hu, Y., Qu, S., Li, G. and Sethi, S.P. 2021. Power structure and channel integration strategy for online retailers. *European Journal of Operational Research*, 294(3): 951-964.

Hu, L. T. and Bentler, P. M. 1999. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary Journal*, 6 (1): 1-55.

Huang, S., Yang, C. and Liu, H. 2013. Pricing and production decisions in a dual-channel supply chain when production costs are disrupted. *Economic Modelling*, 30:521–538. Available: <https://doi.org/10.1016/j.econmod.2012.10.009> (Accessed 12 December 2023).

Huang, W. J., 2021. Literature Review on Omnichannel Retailing. *Expert Journal of Marketing*, 9(1): 1-7.

Huang, T. L., Yang, S. H. and Liu, H. Y. 2013. A study on consumers' adoption intention of single-channel and multichannel retailing: The moderating effect of brand. *Journal of Retailing and Consumer Services*, 20(5): 522-528.

Huge Connect. 2025. *Harnessing AI and Omnichannel Strategies to Reinvent Retail in South Africa*. Available: <https://hugeconnect.co.za/2025/01/16/harnessing-ai-and-omnichannel-strategies-to-reinvent-retail-in-south-africa/> (Accessed 01 April 2025).

Hungilo, M. and Setyohadi, R. 2020. Consumer habits in online grocery shopping. *Journal of Retail and Distribution Management*, 48(4): 25-38.

Hung-Joubert, Y. and Van Huyssteen, N. 2017. Searching, browsing and buying exploring the devices preferred by South African consumers for online shopping. *Journal of Contemporary Management*. 14: 362-384. Available: <https://journals.co.za/doi/pdf/10.10520/EJC-82d0d410f> (Accessed 22 December 2022).

Hult, G.T.M.; Sharma, P.N.; Morgeson, F.V.; Zhang, Y. 2019. Antecedents and Consequences of Customer Satisfaction: Do They Differ Across Online and Offline Purchases? *Journal of Retailing*, 95, 10–23.

Hure, E., Picot-Coupey, K. and Ackermann, C. L. 2017. Understanding omnichannel shopping value: a mixed method study. *Journal of Retailing and Consumer Services*, 39: 314-330.

Hutcheson, G. D. and Moutinho, L. 2011. *The Sage Dictionary of Quantitative Management* Illustrated ed. London: Sage.

Hyman, M. and Sierra, J. 2010. *Marketing research kit for dummies*. Hoboken: Wiley Publishing Inc. research. Wadsworth Cengage Learning.

Ieva, M. and Ziliani, C. 2018. The role of customer experience touchpoints in driving loyalty intentions in omnichannel retailing. *Journal of Retailing and Consumer Services*, 45: 304-313.

Indian Retailer Bureau. 2021. *Winning in Omnichannel: What you need to be doing and why*. Available: <https://www.indianretailer.com/article/technology/digital-trends/winning-at-omnichannel-what-you-need-to-be-doing-and-why.a7127/> (Accessed 25 June 2022).

Insider Trends. 2015. *13 Companies Doing Omnichannel Retail Brilliantly*. Available: <https://www.insider-trends.com/omnichannel-retail-companies/> (18 December 2023).

Investec. 2024. *Cybersecurity: Trends, threats, and strategy*. Available: https://www.investec.com/en_za/focus/money/cybersecurity-in-south-africa-2024.html (Accessed 11 August 2025).

Imam, S. 2024. *Protecting Your Digital Identity: The Power of Strong Passwords*. Available: <https://www.linkedin.com/pulse/protecting-your-digital-identity-power-strong-passwords-shazia-imam-sfrff/> (Accessed 09 August 2024).

IOL. 2019. *Millennials comprise 27% of South Africa's population*. IOL News. Available: <https://www.iol.co.za> (Accessed 5 January 2025).

Irby, B. J., Brown, G., Lara-Alecio, R. and Jackson, S. 2013. *The handbook of educational theories*. North Carolina: Information Age Publishing Inc.

Introduction to retailing. 2024. Available: <https://www.coursesidekick.com/management/study-guides/wmopen-retailmanagement/the-evolution-of-retail> (Accessed 01 July 2024).

Investopedia. 2023. *Shoppers Love the Era of Free Returns. Retailers, Not So Much*. Available: <https://www.investopedia.com/shoppers-love-free-returns-retailers-not-so-much-retail-holiday-8757211> (Accessed 27 December 2024).

Jain, V., Malviya, B. and Arya, S. 2021. An Overview of Electronic Commerce (e-Commerce). *The Journal of Contemporary Issues in Business and Government*, 27(3), 665–670.

Janhoffer, D., Barann, B., Cordes, A. K. and Becker, J. 2020. Mastering omnichannel retailing challenges with Industry 4.0 concepts. *International Conference on System Sciences (HICSS)*. Available: <https://scholarspace.manoa.hawaii.edu/items/a8f3f00e-521c-440d-b0ac-3a5568536b27> (Accessed 15 March 2024).

Javornik, A. 2016. Augmented reality: Research agenda for studying the impact of its media characteristics on consumer behaviour. *Journal of Retailing and Consumer Services*. 30: 252–261.

Jayawardhena, C., Wright, L. T. and Dennis, C. 2019. Generational cohorts and their role in consumer behaviour. *International Journal of Retail and Distribution Management*, 47(3): 327–341.

Jegade, O. 2021. *South Africa's capacity to deploy Fourth Industrial Revolution technologies post-COVID-19*. Available: <https://www.unido.org/stories/south-africas-capacity-deploy-fourth-industrial-revolution-technologies-post-covid-19> (Accessed 05 July 2024).

Jehanne, M. 2024. *Retail heatmap: unravelling in-store customer journey analytics* (blog). Available: <https://chat.openai.com/c/50591695-d721-487f-ad68-631b7e0f014d> (Accessed 19 March 2024).

Jeng, S. P. 2013. Online gift-searching: gift-giving orientations and perceived benefits of searching. *Online Information Review*. 37(5):771-786. Available: <http://dx.doi.org/10.1108/OIR-05-2012-0093> (Accessed 18 December 2023).

Jeswani, R. 2024. The role and importance of social media marketing in brand building. *Irish Interdisciplinary Journal of Science and Research*, 7(4): 1-9.

Jiang, C. N. and Ryan, J. 2020. How does digital technology help in the fight against COVID-19? World Bank Blogs. Available: <https://blogs.worldbank.org/en/developmenttalk/how-does-digital-technology-help-fight-against-covid-19> (Accessed 18 December 2023).

Jin, D., Caliskan-Demirag, O., Chen, F. and Huang, M. 2020. Omnichannel retailers' return policy strategies in the presence of competition. *International Journal of Production Economics*, 225: 107595.

Jo, W., Kim, J. J. and Choi, J. 2020. Who are the multi-channel shoppers, and how can retailers use them? Evidence from the French apparel industry. *Asia Pacific Journal of Marketing and Logistics*. Ahead-of-print. Available: <https://doi.org/10.1108/APJML-05-2019-0317> (Accessed 18 August 2024).

Jocevski, M., Arvidsson, N., Miragliotta, G., Ghezzi, A. and Mangiaracina, R. 2019. Transitions towards omnichannel retailing strategies: A business model perspective. *International Journal of Retail and Distribution Management*, 47(2): 78-93. <https://doi.org.ujlink.uj.ac.za/10.1108/IJRDM-08-2018-0176> (Accessed 20 December 2023).

Jogulu, U. D. and Pansiri, J. 2011. *Mixed methods and applications in Europe*. London: Thomson Learning.

Johnson, A. and Iyamu, T. 2019. Segmenting consumer behaviour for groceries and non-groceries. *Journal of Consumer Behaviour*, 18(3): 112-120.

Jones, C., Borgatti, S. P. and Brass, D. J. 2017. The impact of social media on consumer decision-making processes. *Journal of Consumer Marketing*, 34(4): 320-330.

Jonker, N. 2019. Payment Preferences in Consumer Markets, *Journal of Economic Behavior and Organization*, 164: 34-45.

Jöreskog, K. G. 1969. A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, 34: 183-202.

Joseph, J. 2014. Liberty prepping 'functional and fun' omnichannel strategy. *The Drum*, December 15. Available: <https://www.thedrum.com/news/2014/12/15/liberty-prepping-functional-and-fun-omnichannel-strategy> (Accessed December 18 2023).

Joseph, A. 2023. The evolution of mobile commerce: A decade of transformation. *International Journal of Mobile Marketing*, 15(2): 34-47.

Juaneda-Ayensa, E., Mosquera, A. and Sierra Murillo, Y. 2016. Omnichannel customer behaviour: Key drivers of technology acceptance and use and their effects on purchase

intention. *Frontiers in Psychology*, 7, 1117. Available: <https://doi.org/10.3389/fpsyg.2016.01117> (18 August 2024).

Jung-Hwan, K. 2019. Imperative challenges for Luxury brands: Generation Y consumers' perceptions of luxury fashion brands' e-commerce sites. *International Journal of Retail and Distribution Management*, 47(2): 220-244. Available: <https://www.emeraldinsight.com/0959-0552.htm> (Accessed 25 March 2020).

Kaiser, H. F. 1960. The application of electronic computers to factor analysis. *Educational and psychological measurement*, 20(1), 141-151.

Kang, E. and Hwang, H. J. 2023. The Importance of Anonymity and Confidentiality for Conducting Survey Research. *Journal of Research and Publication Ethics*, 4(1): 1-7. Available: doi: <http://dx.doi.org/10.15722/jrpe.4.1.202303.1> (Accessed 16 March 2024).

Kang, S. and Jung, J., 2014. Mobile communication for human needs: A comparison of smartphone use between the US and Korea. *Computers in Human Behaviour*, 35: 376-387.

Kang, J.Y.M. 2018. Showrooming, webrooming and user-generated content creation in the omnichannel era. *Journal of Internet Commerce*, 17(2): 145-169. Available: <https://doi.org/10.1080/15332861.2018.1433907> (Accessed 26 December 2024).

Kaplan, A. M. and Haenlein, M. 2010. Users of the world, unite! The challenges and opportunities of social media. *Business Horizons*, 53(1): 59-68.

Kardes, F. R., Cline, T. W. and Cronley, M. L. 2011. *Consumer Behaviour: Science and Practice*. International ed. Mason, OH: South-Western Cengage Learning.

Kassem, S. 2023. *Contextualising Amazon's Growing Empire*. In *Work and Alienation in the Platform Economy*: Bristol University Press.

Kaur, J., Santhoshkumar, N., Nomani, M. Z. M., Sharm, D. K., Maroor, J. P. and Dhiman, V. 2022. Impact of Internet of Things (IoT) in the retail sector. *Materials Today: Proceedings*. 26-30.

Kazancoglu, I. and Aydin, H. 2018. An investigation of consumers' purchase intentions towards Omnichannel shopping. *International Journal of Retail and Distribution Management*, 46(10): 959-976. Available: <https://search.proquest.com/docview/2129504619?pq-origsite=summon&accountid=10612> (Accessed 02 June 2020).

Kazancoglu, Y. and Aydin, H. 2018. The extended unified theory of acceptance in retailing. *Journal of Retailing and Consumer Services*, 50: 45-56.

Keenan, M. 2021. *Global E-Commerce: Stats and trends to watch in 2020*. Shopify Plus. Available: <https://www.shopify.com/enterprise/global-ecommerce-statistics#5> (Accessed 23 June 2022).

Keenan, J. 2021. Mobile commerce trends and future outlook. Digital Economy Report: 2-10.

Keller, K. L. 2001. Building Customer-Based Brand Equity, *Marketing Management*, 10(2)12-19.

Kemp, S. 2021. *Digital 2021: South Africa*. Available: <https://datareportal.com/reports/digital-2021-south-africa> (Accessed 14 March 2024).

Kesharwani, A. and Singh Bisht, S., 2012. The impact of trust and perceived risk on internet banking adoption in India: An extension of technology acceptance model. *International Journal of Bank Marketing*, 30(4): 303–322.

Khan, M. 2023. The rise of advanced smartphones: Pioneering the digital revolution. *Technology and Society Journal*, 29(3): 85-92.

Khan, M. A., Shahid, M. H. B., Mansoor, H., Shafique, U., Khan, M. B. and Khan, A. U. R. 2019. IoT-based Grocery Management System: Smart Refrigerator and Smart Cabinet. *International Conference on Systems of Collaboration Big Data, Internet of Things and Security*, Casablanca, Morocco: 1-5. Available: Doi: <https://10.1109/SysCoBloTS48768.2019.9028031> (Accessed 02 August 2024).

Khan, S., Tomar, S., Fatima, M. and Khan, M. Z. 2022. Impact of artificial intelligent and industry 4.0 based products on consumer behaviour characteristics: A meta-analysis-based review, *Sustainable Operations and Computers*, 3: 218-225

Khando, K. M., Islam, S and Gao, S. 2023. The Emerging Technologies of Digital Payments and Associated Challenges: A Systematic Literature Review *Future Internet* 15(1): 21. Available: <https://doi.org/10.3390/fi15010021> (Accessed 10 July 2024).

Kheswa, A. 2023. *AI: The Retail industry's secret weapon in the 4IR era*. Available: <https://www.linkedin.com/pulse/ai-retail-industrys-secret-weapon-4ir-era-amukelani-kheswa-y5etf/> (Accessed 15 March 2024).

Khine, M., Ping, L. and Cunningham, D. 2013. *Application of structural equation modelling in educational research and practice*. Rotterdam: Sense Publishers.

Kim, J. and Forsythe, S. 2008. Adoption of virtual try-on technology for online apparel shopping. *Journal of Interactive Marketing*, 22(2): 45–59.

Kim, D. J., Ferrin, D. L. and Rao, H. R., 2008. A trust-based consumer decision-making model in electronic commerce: The role of trust, perceived risk and their antecedents. *Decision Support Systems*, 44(2): 544–564.

Kim, H. W., Chan, H. C. and Gupta, S. 2020. Adoption of Mobile Payment Technologies, *Journal of Information Technology*, 35(2): 112-125.

Kim, H., Chan, H. and Gupta, S. 2019. Adoption of E-Commerce Return Mechanisms, *Journal of Business Research*, 93: 62-78.

Ki, C.W., Cuevas, L.M., Chong, S.M. and Lim, H. 2020. Influencer marketing: Social media influencers as human brands, attaching to followers. *Journal of Retailing and Consumer Services*, 55: 102127.

Klapdor, S., Anderl, E., Schumann, J. H. and Von Wangeheim, F. 2015. How to use multichannel behaviour to predict online conversion behaviour patterns across online channels, inform strategies for turning users into paying customers. *Journal of Advertising Research*, 55(4): 433-442.

Knott-Craig, A. 2018. *The internet will be free one day*. Available: <https://www.bizcommunity.com/Article/196/544/169552.html> (Accessed 02 June 2020).

Kogan, K. 2012. Ship-to-order supplies: contract breachability and the impact of a manufacturer-owned direct channel. *European Journal of Operational Research*, 218:113–123. Available: <https://doi.org/10.1016/j.ejor.2011.10.022> (Accessed 10 October 2022).

Kogan, M. 2012. Challenges in single-channel retailing: Examining customer experience in a focused setting. *Retail Management Review*, 18(2): 114-130.

Konuş, U., Verhoef, P. C. and Neslin, S. A. 2008. Multi-channel shopper segments and their covariates. *Journal of Retailing*, 84(4): 398-413. Available: <https://doi.org/10.1016/j.jretai.2008.09.002> (Accessed 12 December 2023).

Konuş U, Neslin S. A. and Verhoef, P. C. 2014. The effect of search channel elimination on purchase incidence, order size and channel choice. *International Journal of Research in Marketing*, 31:49–64. Available: <https://doi.org/10.1016/j.ijresmar.2013.07.008> (Accessed 26 December 2024).

Kotler, P., Keller, K., Brady, M., Goodman, M. and Hansen, T. 2019. *Marketing Management*. Harlow: Pearson.

Kotler, P and Keller, K. L. 2012. *Marketing Management*. 14th ed. Place: Pearson Education.

Kotler, P and Keller, K. L. 2016. *Marketing management*. 15th ed. Harlow: Pearson.

Kovalenko, A. 2021. Older Adults Shopping Online: A Fad or a Trend? In E. Mazaheri (Ed.), *The Impact of COVID-19 on E-Commerce* (67-80). Proud Pen.

KPMG. 2023. *Cybersecurity considerations for South African retailers*. Available: <https://kpmg.com/us/en/articles/2023/cybersecurity-considerations-2023-en.html> (Accessed 09 August 2025).

Kraska-Miller, M. 2014. *Non-parametric statistics for social and behavioural sciences*.

Krishnaswamy, K. N., Sivakumar, A. I. and Mathirajan, M. 2009. *Management research*

Krueger, J. 2015. Omnichannel shoppers: an emerging retail reality. Available: <https://www.thinkwithgoogle.com/marketing-resources/omnichannel/omni-channel-shoppers-an-emerging-retail-reality/> (Accessed 20 May 2020).

- Kukar-Kinney, M. and Close, A.G. 2010. The determinants of consumers' online shopping cart abandonment, *Journal of the Academy of Marketing Science*, 38(2), 240-250.
<https://doi.org/10.1007/s11747-009-0141-> (Accessed 09 July 2024).
- Kumar, A., Dixit, A., Javalgi, R. G. and Dass, M. 2021. Digital transformation of consumer services: A review and research agenda. *Journal of Business Research*, 122: 547–561.
- Kumar, R. 2019. *Research methodology a step-by-step guide for beginners*. 5th ed. New Delhi: Sage.
- Kumar, H. 2022. Augmented reality in online retailing: a systematic review and research agenda. *International Journal of Retail and Distribution Management*, 50(4): 537-559.
- Kumar, R. and Usman, A. 2024. Social influence in online grocery shopping. *Journal of Marketing Research*, 61(1): 112-124.
- Labrin, C. and Urdinez, S. 2020. R for political data science. Place: Chapman and Hall/CRC.
- Lambert, B. L. and Newman, A. 2023. *Construct development and validation in three practical steps: Recommendations for reviewers and editors*. *Management and Organisation Review*, 19(1): 1–11. Available: DOI: 10.1177/10944281221115374 (Accessed 10 August 2025).
- Larkin, C. 2024. Embracing last-mile logistics for successful supply chains. Available: https://supermarket.co.za/images/Magazines/2024/Issue_7_2024/Last-mile_logistics_SR_2024-7.pdf (Accessed 11 August 2025).
- Lazaris, C. and Vrechopoulos, A. 2014. Human computer vs. consumer-store interaction in a multichannel retail environment: some multidisciplinary research directions (Conference session). International Conference on HCI in Business. 339-349. Springer.
- Leavy, P. 2022. *Research Design: Quantitative, Qualitative, Mixed Methods, Arts-Based and Community-Based Participatory Research Approaches*. 2nd. New York: Guilford Publications.
- Lechman, A. 2021. *A store of the future: Shoprite's new concept store without tills and checkouts*. Available: <https://sundayworld.co.za/news/business/a-store-of-the-future-shoprites-new-concept-store-withouttills-and-checkouts/> (Accessed 26 December 2024).
- Lee, J., Kao, H.-A. and Yang, S. 2014. Service innovation and smart analytics for industry 4.0 and big data environment. *Procedia CIRP*, 16: 3-8. Available: <https://reader.elsevier.com/reader/sd/pii/S2212827114000857?token=A758045052307E1937AD89EEFB93BA385D8E98B2C30E7F15ACDC4D73A5E4821A3CAC80C8F3BAB22A7856BA242E8AC76> (Accessed 05 October 2020).
- Leedy, P. D. and Ormrod, J. E. 2021. *Practical research planning and design*. 12th ed. Essex: Pearson Education Limited.

Lee, H., Lee, J. and Kwon, O. 2016. The Role of Communication Channels in Product Returns, *Journal of Interactive Marketing*, 35(4): 129-140.

Lemon, K. N. and Verhoef, P. C. 2016. Understanding customer experience throughout the customer journey. *Journal of Marketing*, 80(6): 69–96.

Levy, M. and Weitz, B. A. 2011. *Retailing management*. 8th ed. McGraw-Hill: New York.

Levy, M., Weitz, B. and Grewal, D. 2013. *Retailing management*. 9th ed. McGraw-Hill Education, New York, USA.

Liberty Two Degrees. 2023. *Integrated Annual Report 2023*. Liberty Two Degrees. Available: <https://www.liberty2degrees.co.za/investors-hub/integrated-reports> (Accessed 09 August 2025).

Liébana-Cabanillas, F., Sánchez-Fernández, J. and Muñoz-Leiva, F. 2018. Examining the Adoption of Mobile Payment Systems, *Journal of Technology in Society*, 52: 21-31.

Liesch, K. n.a. *Social commerce for the omnichannel consumer*. Available: <https://www.mikmak.com/blog/social-commerce-for-the-omnichannel-consumer> (Accessed 12 October 2022).

Liew, S. Y., Rana, M. E., Hameed, V. A. and Safavi, S. 2023. Navigating the Retail 4.0 Landscape: The Transformative Impact of Cloud Computing. *IEEE 21st Student Conference on Research and Development*, Kuala Lumpur, Malaysia: 499-507. Available: <https://doi.org/10.1109/SCORed60679.2023.10563349> (Accessed 30 July 2024).

Li, X., Li, Y. and Gharehgozli, A. 2023. Competitive pricing in online grocery shopping. *International Journal of Retail and Distribution Management*, 51(2): 15-30.

Lin, C. 2020. Delivery technology is keeping Chinese cities afloat through coronavirus. *Harvard Business Review*. Available: <https://hbr.org/2020/03/delivery-technology-is-keeping-chinese-cities-afloat-through-coronavirus> (Accessed 25 June 2022).

Lin, C. and Chen, W. 2006. Consumer decision-making models: Insights and applications. *Journal of Consumer Studies*, 30(2): 115-123.

Ling, S. C., Jusoh, M. S. and Ishak, N. A., 2018, An integrative theoretical framework for understanding the role of structural capability in quality management practices on quality performance, *International Journal of Asian Social Science* 8(11), 974-984. Available: <https://doi.org/10.18488/journal.1.2018.811.974.984> (Accessed 14 March 2024).

Lipschultz, J. H. 2020. *Social media measurement and management: Entrepreneurial digital analysis*. London: Routledge.

Liu, H., Lobschat, L and Verhoef, P. 2018. Multi-channel Retailing: A Review and Research Agenda. *Foundations and Trends in Marketing*, 12: 1-79. Available: https://www.researchgate.net/publication/329791137_Multichannel_Retailing_A_Review_and_Research_Agenda (Accessed 25 May 2024).

- Lomberg, G. 2024. *Beyond Covid: Top trends driving the evolution of South African retail*. Available: <https://www.bizcommunity.com/Article/196/731/237164.html> (Accessed 01 July 2024).
- Lucas, M., Lunardi, G. and Dolci, D. 2022. Mobile interactions and the rise of m-commerce. *Journal of Digital Marketing Trends*, 18(4): 25-38.
- Lucas, M., Lunardi, G. and Dolci, D. 2023. Mobile marketing through SMS: Evolution and implications. *International Journal of Mobile Marketing*, 16(1): 45-58.
- Lumen Learning. 2020. *Introduction to retailing. The evolution of retail. Module of retail management*: Portland. Available: <https://courses.lumenlearning.com/wm-retailmanagement/chapter/introduction-to-the-evolution-of-the-retail-industry/> (Accessed June 23 2022).
- Lyu, J. D., Krasnikolakis, I. and Chen, C-H. 2023. Unlocking the shopping myth: Can smartphone dependency relieve shopping anxiety? – A mixed-methods approach in UK Omnichannel retail. *Information and Management*, 60: 1-20. Available: <https://doi.org/10.1016/j.im.2023.103818> (Accessed 04 April 2024).
- Macdonald, E. K. and Sharp, B. M. 2000. Brand awareness effects on consumer decision making for a common, repeat purchase product: A replication. *Journal of Business Research*, 48(1): 5-15.
- Madinga, N.W. and Lappeman, J. 2023. Social Media Sentiment Analysis: Online versus 'Brick and Mortar' Retailers in South Africa. *Journal of African Business*, 24(2): 345-362.
- Maignan, I. and Lukas, B. A. 1997 The nature and social uses of the internet: a qualitative investigation. *Journal of Consumer Affairs*, 31(2):346–71.
- Mäkelä, A. 2023. Consumer frustrations in grocery shopping. *Journal of Consumer Behaviour*, 40(2): 32-45.
- Malhotra, N. K. 2019. *Marketing research: an applied orientation*. 7th ed. Harlow: Pearson.
- Malhotra, N. K., Baalbaki, I. B. and Bechwati, N. N. 2013. *Marketing research: an applied approach*. Arab World ed. Essex: Pearson.
- Malhotra, N. K., Kim, S. S. and Agarwal, J. 2004. Internet users' information privacy concerns (IUIPC): The construct, the scale and a causal model. *Information Systems Research*, 15(4): 336–355.
- Malinga, S. 2022. *Woolies shoppers can now buy via Instagram and TikTok*. Available: <https://www.itweb.co.za/article/woolies-shoppers-can-now-buy-via-instagram-tiktok/PmxVEMKEAY2vQY85> (Accessed 09 July 2024).
- Malinga, S. 2023. *South African shoppers prefer retail self-service*. Available: <https://www.itweb.co.za/article/south-african-shoppers-prefer-retail-self-service/RgeVDMRPJZvKJN3> (Accessed 05 April 2024).

Mangold, W. G. and Faulds, D. J. 2009. Social media: The new hybrid element of the promotion mix. *Business Horizons*, 52(4): 357-365.

Mann, M. K., Liu-Thompkins, Y., Watson, G. S. and Papelis, Y. E., 2015. *A Multidisciplinary Examination of 3D Virtual Shopping Environments: Effects on Consumer Perceptual and Physiological Responses*, In *Ideas in Marketing: Finding the New and Polishing the Old*. Springer International Publishing: 752-755.

Marcoulides, G. A. and Schumacker, R. E. 1996. *Advanced structural equation modeling: Issues and techniques*. New Jersey: Lawrence Erlbaum Associates Inc.

Martynenko, S. 2023. (*online blog*). 95% of the world's largest online stores have errors in the checkout process. Available: <https://nxdigitalagency.com/en/blog-en/95-of-the-world-s-largest-online-stores-have-errors-in-the-checkout-process/> (Accessed 26 December 2024).

Marr, B. 2024. *7 ways retailers are using generative AI to provide a better shopping experience*. Available: <https://www.linkedin.com/pulse/7-ways-retailers-using-generative-ai-provide-better-shopping-marr-o1eee/?trackingId=n%2BvHKpKPQTCZ50NWSPV%2FYA%3D%3D> (Accessed 17 March 2024).

Martynova, E., West, S. G. and Liu, Y. 2018. Review of principles and practice of Structural Equation Modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, 25: 325-329.

Marikyan, D. and Papagiannidis, S. 2023. *Unified Theory of Acceptance and Use of Technology: A review*. In S. Papagiannidis, TheoryHub Book. Available at <https://open.ncl.ac.uk/ISBN:9781739604400> (Accessed 20 December 2024).

Masojada, M. 2021. *The South African retail landscape*. Available: <https://openbooks.uct.ac.za/uct/catalog/download/29/52/1576?inline=1> (Accessed 18 December 2023).

Masoud, E. Y. 2013. The effect of perceived risk on online shopping in Jordaan. *European Journal of Business and Management*. 5(6): 76-88. Available: <https://www.iiste.org/Journals/index.php/EJBM/article/view/4689/4768> (Accessed 19 December 2023).

Mari, A., Mangiò, F., Castellano, S. and Zerbini, F. 2024. Empathic voice assistants in retail: Shaping shopping responses. *Journal of Retailing and Consumer Services*, 73: 103338.

Mathur, A., Dabas, A. and Sharma, N. 2022. Evolution From Industry 1.0 to Industry 5.0. 2022 4th International Conference on Advances in Computing, Communication Control and Networking (ICAC3N). Available: <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=10074274> (Accessed 10 April 2024).

Maydeu-Olivares, A., Fairchild, A. J. and Hall, A. G. 2017. *Goodness of fit in item factor analysis: Effect of the number of response alternatives*. *Structural Equation Modelling*, 24, 495–505. Available: [Http://www.Doi.10.1080/10705511.2017.1289816](http://www.Doi.10.1080/10705511.2017.1289816) (Accessed on 07 August 2024).

Maydeu-Olivares, A., Shi, D. and Rosseel, Y. 2019. *Instrumental Variables Two-Stage Least Squares (2SLS) vs. Maximum Likelihood Structural Equation Modeling of Causal Effects in Linear Regression Models*. Available: https://www.researchgate.net/profile/Alberto-Maydeu-Olivares/publication/333728723_Instrumental_Variables_Two-Stage_Least_Squares_2SLS_vs_Maximum_Likelihood_Structural_Equation_Modeling_of_Causal_Effects_in_Linear_Regression_Models/links/5d08b552a6fdcc35c155e9f0/Instrumental-Variables-Two-Stage-Least-Squares-2SLS-vs-Maximum-Likelihood-Structural-Equation-Modeling-of-Causal-Effects-in-Linear-Regression-Models.pdf (Accessed 07 August 2024).

McCormick, H., Cartwright, J., Perry, P., Barnes, L., Lynch, S. and Ball, G. 2014. Fashion retailing - Past, present and future. *Textile Progress*, 46(3): 227-321. Available: <https://doi.org/10.1080/00405167.2014.973247> (Accessed 18 December 2023).

McDaniel, C. and Gates, R. 2020. *Marketing Research: Using analytics to develop market insights*. 12th ed. Hoboken: Wiley.

McDaniel Jr, C. and Gates, R. 2020. Marketing research: The role of theory. *Marketing Research Journal*, 25(1): 15-27.

McGivern, Y. 2021. *The Practice of Market Research*. 5th. Harlow: Pearson International Content.

McLean, G. and Osei-Frimpong, K. 2019. Hey, Alexa, examine the variables influencing the use of artificial intelligence in-home voice assistants. *Computers in Human Behaviour*, 99: 28-37. Available: <https://doi.org/10.1016/j.chb.2019.05.009> (Accessed 15 March 2024).

McLean, S., Read, G. J., Thompson, J., Baber, C., Stanton, N. A. and Salmon, P. M. 2021. The risks associated with Artificial General Intelligence: A systematic review. *Journal of Experimental and Theoretical Artificial Intelligence*, 1-15.

Melia, E. 2019. The impact of information and communication technologies on jobs in Africa. Bonn: German Development Institute.

Melnick, J. 2017. Topshop's virtual reality marketing: From catwalks to waterslides. *Fashion Marketing Journal*, 12(3): 45-52.

Mendenhall, W., Beaver, R. and Beaver, B. 2012. *Introduction to probability and statistics*. 14th ed. Boston: Brook/Cole Cengage Learning.

Metafour. 2024. Revolutionising Delivery to Rural Areas in South Africa. Available: <https://www.metafour.com/news/revolutionising-deliveries-to-rural-areas-in-south-africa/> (Accessed 11 August 2025).

Micheal, T., Mbabazi, B.P. and Patricia, K. 2020. Mobile-commerce usage challenges among university students in Uganda: A case of Kabale University. *Journal of Internet Banking and Commerce*, 25(3): 1-11.

Microsoft. 2019. *Why Plexure*. Available: <https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE4rDnW> (Accessed 23 July 2024).

Mimouni-Chaabane, A. and Volle, P. 2010. Perceived benefits of loyalty programs: Scale development and implications for relational strategies. *Journal of Business Research*, 63 (1): 32-37.

Mimecast. 2024. *State of Email Security Report – South Africa edition*. Available: <https://www.mimecast.com/resources/ebooks/the-state-of-email-and-collaboration-security-2024/> (Accessed 09 August 2025).

Mintel. 2014b. *Omnichannel trends in consumer electronics*. *Mintel Market Research Reports*. Available: <https://www.mintel.com> (Accessed 5 January 2025).

Mir, I. A. 2023. Self-escapism motivated online shopping engagement: A determinant of users' online shopping cart use and buying behaviour. *Journal of Internet Commerce*, 22(1): 40-73.

Misischia, C. V., Poecze, F., and Strauss, C. 2022. Chatbots in Customer Service: Their Relevance and Impact on Service Quality. *Procedia Computer Science*, 201, 421-428. Available: <https://doi.org/10.1016/j.procs.2022.03.055> (Accessed 10 August 2025).

Mista, A. 2017. Omnichannel retailing: A guide to creating seamless shopping experiences. *Journal of Retail Management*, 32(1): 19-27.

Mishra, R., Singh, R. K. and Koles, B. 2020. Consumer decision making in omnichannel retailing: literature review and future research agenda. *International Journal of Consumer Studies*. Available: https://onlinelibrary.wiley.com/doi/epdf/10.1111/ijcs.12617?saml_referrer (Accessed 25 February 2022).

Mkhomazi, S. S. and Iyamu, T. 2024. A guide selecting theory to underpin information systems studies. *Advances in Information and Communication Technology*, 402: 525-537.

Mohamed, F. 2024. *Shopping malls and retail centres redefine retail in South Africa*. Available: <https://www.bizcommunity.com/article/shopping-malls-and-retail-centres-redefine-retail-in-south-africa-922324a> (Accessed 05 December 2024).

Moffat, B. 2017. Omnichannel vs multi-channel: What's the difference and who is doing it? Available: <https://www.the-future-of-commerce.com/2017/09/13/omnichannel-vs-multichannel/> (Accessed 03 January 2020).

Morgeson, F., Hult, G. and Mithas, S. 2020. Real-Time Customer Service and Returns, *Journal of Consumer Research*, 47(2): 33-45.

Mortimer, G., Fazal e Hasan, S., Andrews, L. and Martin, J. 2016. Online grocery shopping: the impact of shopping frequency on perceived risk. *The International Review of Retail, Distribution and Consumer Research*, 26(2): 202-223.

Mosquera, A., Pascual, C. O. and Ayensa, E. J. 2017. Understanding the customer experience in the age of omni-channel shopping, *Icono 14*, 15(2): 235-255. Available: doi: 10.7195/ri14.v15i2.1070 (Accessed 23 December 2024).

Mottl, J. 2019. *Are social networks primed to be the next omnichannel frontier? Yes, no, maybe.* Available: <https://www.retailcustomerexperience.com/articles/are-social-networks-primed-to-be-the-next-omnichannel-frontier-yes-no-maybe/> (Accessed March 22 2021).

Mr Price Group. 2023. *Annual Integrated Report 2023*. Mr Price Group. Available: https://www.mrpricegroup.com/pdfs/Mr-Price-Group-AIR23_IR.pdf (Accessed 09 August 2025).

Mudd, R., Feo, A., Conroy, M. and Kitson, M. 2020. Theoretical foundations in social science research. *Journal of Research Methodology*, 34(3): 10-25.

Nando's. 2023. *Nando's South Africa Sustainability and Innovation Report 2023*. Nando's South Africa. Available: <https://www.nandos.com/restaurants/sustainability/> (Accessed 09 August 2025).

National Telecommunications and Information Administration (NTIA). 2021. *Nearly Three-Fourths of Online Households Continue to Have Digital Privacy and Security Concerns*. Available: <https://www.ntia.gov/blog/2021/nearly-three-fourths-online-households-continue-have-digital-privacy-and-security-concerns> (Accessed 01 April 2025).

Nargundkar, R. 2020. *Marketing research: text and cases*. 4th ed. New York: McGraw-Hill.

Ndlovu, 2023. *Online shopping returns in South Africa: buyer beware!* Available: <https://techcentral.co.za/online-shopping-returns-in-south-africa/236348/> (Accessed 27 December 2024).

Niale, T. 2023. The impact of advanced analytics on personalised shopping experiences. *Journal of Retail Analytics*, 15(2): 75-84.

Nickerson, C. 2023. *Theory of Reasoned Action (Fishbein and Ajzen, 1975)*. Available: <https://www.simplypsychology.org/theory-of-reasoned-action.html> (Accessed 20 December 2024).

NielsenIQ. 2024. *How Gen Z consumer behaviour is reshaping retail*. NielsenIQ Insights. Available: <https://nielseniq.com> (Accessed 5 January 2025).

Nikolaidis, N. 2024. *How to gather consumer insights (and use them to improve your business)*. Available: <https://www.askattest.com/blog/articles/how-to-gather-consumer-insights> (Accessed 27 March 2024).

Nortjè, G. 2023. *Data an untapped opportunity in retail with the potential to revolutionise the sector*. Available: <https://www.bizcommunity.com/Article/196/458/241112.html> (Accessed 27 March 2024).

Neff, J. 2007. *The rise of shopper marketing: Hot trends and best practices for engaging today's shopper*. Place: McGraw-Hill Professional.

Neelankavil, J. P. 2015. *International business research*. New York: Routledge.

Neslin, S., D. Grewal, R. Leghorn, V. Shankar, M. L. Teerling, J. S. Thomas and P. C. Verhoef. 2006. Challenges and Opportunities in Multi-channel Customer Management. *Journal of Service Research* 9 (2): 95–112. Available: doi: <https://doi.org/10.1177/1094670506293559> (Accessed 12 December 2023).

Neslin, S. A. 2022. The omnichannel continuum: Integrating online and offline channels along the customer journey. *Journal of Retailing*, 98(1): 111-132.
https://www.sciencedirect.com/science/article/pii/S0022435922000112?casa_token=djS_GaHExssAAAAA:vMTOEOhTRQhJb8YkijEBSi5h3Jvka6L93ELqi_WTHlxbxloXo0JrgWNCugd5shB8Ofi0jCf_Tye4K (Accessed 26 December 2024).

Newby, P. 2014. *Research methods for education*. 2nd ed. Oxon: Routledge.

Newsroom. 2023. How the Shoprite Group is redefining shopping in South Africa. Available: <https://www.shopriteholdings.co.za/newsroom/2023/retail-store-of-the-future.html> (Accessed 11 August 2025).

Nguyen, T. M., Le, D., Quach, S., Thaichon, P. and Ratten, V. 2021. The current trends and future direction of digital relationship marketing: *a business perspective*.

Ntobaki, P.P. 2023. The effect of social media brand engagement on South African consumers. *African Journal of Information Management Studies*, 5(1): 15-23. Available: <https://journals.co.za/doi/10.51415/ajims.v5i1.1158> (Accessed 29 August 2024)

Ntumba, C., Aguayo, S. and Maina, K. 2023. Revolutionising retail: a mini review of e-commerce evolution. *Journal of Digital Marketing and Communication*, 3(2): 100-110

Nunnally, J. C. 1978. *Psychometric theory*. 2nd ed. New York: McGraw-Hill.

Nunan, D., Birks, D. F. and Malhotra, N. K. 2020. *Marketing research*. 6th ed. Essex: Pearson.

Oberlo. 2021. *Mobile commerce sales in 2021*. Available: <https://www.oberlo.com/statistics/mobile-commerce-sales> (Accessed 23 June 2022)

Ocado Group. 2024. *Kroger rolls out new technology enhancements with Ocado Group*. Available: <https://www.ocadogroup.com/media/news/kroger-rolls-out-new-technology-enhancements-with-ocado-group> (Accessed 01 April 2025).

O'Donoghue, T. 2018. *Planning Your Qualitative Research Thesis and Project: An Introduction to Interpretivist Research in Education and the Social Sciences*. 2nd. New York: Routledge.

Oliver, R. L. 1980. A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, 17(4): 460-469.

Oliver, R. L. 1999. Whence Consumer Loyalty? *Journal of Marketing*, 63(Special Issue): 33-44.

Oliver, R. L. 2014. *Satisfaction: A Behavioural Perspective on the Consumer*. 2nd ed. New York: Routledge.

Omar, A., Othman, R., Yusof, M. and Rahman, A. 2021. Mobile payments: A pathway to seamless m-commerce transactions. *Journal of Financial Services Marketing*, 26(3): 175-187.

Omohundro, S. 2014. Autonomous technology and the greater human good. *Journal of Experimental and Theoretical Artificial Intelligence*, 26(3): 303-315. Available: <https://www.tandfonline.com/doi/abs/10.1080/0952813X.2014.895111> (Accessed 15 March 2024).

Online retail in South Africa 2024. 2024. Available: https://www.google.com/url?sa=i&url=https%3A%2F%2Fgadget.co.za%2Fwp-content%2Fuploads%2F2024%2F05%2FOnline-Retail-in-South-Africa-2024.pdf&psig=AOvVaw1E2kHTEt1GpxYBXQnFcBa9&ust=1720083488378000&source=images&cd=vfe&opi=89978449&ved=0CAQQn5wMahcKEwjwsu_EwlqHAXUAAAAHQAAAAQBA (Accessed July 03 2024).

Ortlinghaus, A., Zielke, S. and Dobbelsstein, T. 2019. The Impact of Risk Perceptions on the Attitude toward Multi-Channel Technologies. *The International Review of Retail, Distribution and Consumer Research* 29 (3): 262-284.

Ozturk, A. B., Bilgihan, A., Salehi-Esfahani, S. and Hua, N. 2017. Understanding the Mobile Payment Technology Acceptance Model, *International Journal of Information Management*, 37(4): 399-410.

Pantano, E. 2015. *Successful Technological Integration for Competitive Advantage in Retail Settings*. US: IGI Global.

Park, J. and Kim, R. B. 2019. The effects of integrated information and service, institutional mechanism and need for cognition (NFC) on consumer omnichannel adoption behaviour. *Asia Pacific Journal of Marketing and Logistics, ahead-of-print*. Available: <https://doi.org/10.1108/APJML-06-2018-0209> (Accessed 18 August 2024).

Park, J. and Yoo, W. S. 2022. Retail innovation in the 4th industrial revolution. *Journal of Retailing and Consumer Services*, (65): 1-2. Available: <https://doi.org/10.1016/j.jretconser.2021.102675> (Accessed 05 July 2024).

Park, J., Stoel, L. and Lennon, S. J. 2008. Cognitive, affective and conative responses to visual simulation: The effects of rotation in online product presentation. *Journal of Consumer Behaviour: An International Research Review*, 7(1), 72-87. Available: <https://doi.org/10.1002/cb.237> (Accessed 20 December 2024).

Park University. 2024. The Power of Micro-Moments: Marketing in a Mobile-First World. Available: [https://www.park.edu/blog/the-power-of-micro-moments-marketing-in-a-mobile-first-world/Park University](https://www.park.edu/blog/the-power-of-micro-moments-marketing-in-a-mobile-first-world/Park%20University) (Accessed 21 February 2025).

Paterson, G. 2024. *The battle of the marketplaces will shape the future of omnichannel retail in South Africa*. Available: <https://www.bizcommunity.com/article/the-battle-of-the-marketplaces-will-shape-the-future-of-omnichannel-retail-in-south-africa-702812a> (Accessed 05 December 2024).

Payments Association of South Africa. 2022. *Annual Review 2022*. PASA. Available: https://pasa.org.za/wp-content/uploads/2023/06/PASA_IAR_2022.pdf (Accessed 10 August 2025).

Peltola, S., Vainio, H. and Nieminen, M. 2015. Key Factors in Developing Omnichannel Customer Experience with Finnish Retailers, *HCI in Business Second International Conference*, Los Angeles, 335-346. Available: [file:///C:/Users/TesRe/Downloads/HCI-2015 Omnichannel Customer Experience final light fixed.pdf](file:///C:/Users/TesRe/Downloads/HCI-2015%20Omnichannel%20Customer%20Experience%20final%20light%20fixed.pdf) (Accessed December 19 2023).

Pendrill, K. 2020. Why self-ordering kiosks are a secret weapon for restaurants. Available: <https://www.touchbistro.com/blog/why-self-ordering-kiosks-are-becoming-the-secret-weapon-for-successful-restaurants/> (Accessed June 23 2022).

Pentz, C. D., Du Preez, R. and Swiegers, L. 2020. The online shopping behaviour of technologically enabled consumers: A South African Generation Y study. *African Journal of Economic Research*, 15(3): 227-253. Available: <https://doi.org/10.31920/1750-4562/2020/v15n3a10> (Accessed 13 August 2024).

Pentz, C., Du Preez, R. and Swiegers, L. 2020. Online grocery shopping adoption in South Africa. *South African Journal of Business Management*, 51(1): 78-90.

Perannagari, K. T. and Chakrabarti, S. 2019. Factors influencing acceptance of augmented reality in retail: Insights from thematic analysis. *International Journal of Retail and Distribution Management*, 48(1), 18–34. Available: <https://doi.org/10.1108/IJRDM-02-2019-0063> (Accessed 18 August 2024).

Perez, S. 2020. Pandemic helped drive Walmart E-Commerce sales up 97% in second quarter. Available: <https://techcrunch.com/2020/08/18/pandemic-helped-drive-walmart-e-commerce-sales-up-97-in-second-quarter/> (Accessed June 23 2022).

Peterson, R. A. 2000. A meta-analysis of variance accounted for and factor loadings in exploratory factor analysis. *Marketing letters*, 11: 261-275.

Pew Research Centre. 2019. *Americans and Privacy: Concerned, Confused and Feeling Lack of Control Over Their Personal Information*. Available: <https://www.pewresearch.org/internet/2019/11/15/americans-and-privacy-concerned-confused-and-feeling-lack-of-control-over-their-personal-information/> (Accessed 01 April 2025).

Pew Research Centre. 2022. *Writing survey questions*. Available: <https://www.pewresearch.org/our-methods/u-s-surveys/writing-survey-questions/> (Accessed 12 December 2022).

Pfeiffer, J., Scholz, M. and Rothlauf, F. 2019. A Domain-Oriented Analysis of the Impact of Machine Learning. *Computers*, 3(1), 11. Available: <https://www.mdpi.com/2504-2289/3/1/11> (Accessed 01 April 2025).

Pham, L. T. M. 2018. *A Review of key paradigms: positivism, interpretivism and critical inquiry*. Available: https://www.researchgate.net/publication/324486854_A_Review_of_key_paradigms_positivism_interpretivism_and_critical_inquiry#:~:text=DOI%3A%2010.13140/RG.2.2.13995.54569 (Accessed 20 December 2024).

Phua, J., Jin, S. V. and Kim, J. J. 2020. Uses and gratifications of social networking sites for bridging and bonding social capital: A comparison of Facebook, Twitter, Instagram, and Snapchat. *Computers in Human Behaviour*, 72: 115–122.

Pick n Pay. 2023. Pick n Pay Integrated Annual Report 2023. Pick n Pay Stores Ltd. Available: <https://www.picknpayinvestor.co.za/pdf/annual-report/2023/integrated-annual-report-2023-spreads.pdf> (Accessed 09 August 2025).

Pillay, S. 2019. *The Fourth Industrial Revolution in retail and the low-income consumer*. Available: <https://www.bizcommunity.com/Article/196/185/191397.html> (Accessed 30 July 2019).

Piotrowicz, W. and Cuthbertson, R. 2014. Introduction to the Special Issue Information Technology in Retail: Toward Omnichannel Retailing. *International Journal of Electronic Commerce*, 18(4): 5-16. Available: <https://www.jstor.org/stable/24695836> (Accessed 12 December 2023).

Polonsky, M. J. and Waller, D. S. 2018. *Designing and Managing a Research Project: A Business Student's Guide*. 4th ed. California: Sage. Available: <https://dx.doi.org/10.4135/9781544316499.n6> (Accessed 27 June 2022).

Podsakoff, P. M., MacKenzie, S. B. and Podsakoff, N. P. 2016. *Recommendations for creating better concept definitions in the organisational, behavioural, and social sciences*. *Organisational Research Methods*, 19(2): 159–203. Available: <https://psycnet.apa.org/doi/10.1177/1094428115624965> (Accessed 10 August 2025).

Ponemon Institute. 2020. *The impact of cybersecurity lapses on consumer trust: A survey of antivirus usage*. Available: <https://www.ponemon.org/> (Accessed 27 December 2024).

Power Reviews. 2016. The power of reviews how ratings and reviews influence the buying behaviour of the modern consumer. Available: https://www.powerreviews.com/wp-content/uploads/2016/04/PowerofReviews_2016.pdf (Accessed 05 December 2025).

Press, R. 2023. *5 Ways IoT Can Boost Omnichannel Retail Experience in 2023*. Available: <https://www.convictional.com/blog/iot-omnichannel-retail#:~:text=IoT%20can%20help%20you%20with,and%20discounts%20across%20all%20channels> (Accessed 05 July 2024).

Preston, C. C. and Colman, A. M. 2000. Optimal number of response categories in rating scales: Reliability, validity, discriminating power, and respondent preferences, *Acta Psychologica*, 104(1):1–15. Available: [https://doi.org/10.1016/S0001-6918\(99\)00050-5](https://doi.org/10.1016/S0001-6918(99)00050-5) (Accessed 10 August 2025).

Price, P.C., Jhangiani, R.S. and Chiang, I.C.A. 2015. *Research Methods in Psychology*. 2nd ed. The Saylor Foundation, BCCAMPUS, VICTORIA, B.C. Available: <https://opentextbc.ca/researchmethods/> (Accessed 20 December 2024).

Pride, W. M. and Ferrell, O. C. 2021. *Foundations of Marketing*. 9th ed. Boston: Cengage.

Priporas, C. V., Stylos, N. and Fotiadis, A. K. 2017. Generation Z consumers' expectations of interactions in smart retailing: a future agenda. *Computer and Human Behaviour*, 77:374–381. Available: <https://doi.org/10.1016/j.chb.2017.01.058>. (Accessed 05 April 2024).

Prismetric. 2024. AI in Retail Industry: Use Cases, Benefits, Real-Life Examples and Important Stats. Available: <https://www.prismetric.com/ai-in-retail-industry/> (Accessed 01 April 2025).

Product classifications. 2024. Available: <https://iu.pressbooks.pub/mktgwip/chapter/chapter-7-product-management/> (Accessed 01 July 2024).

Puhle, M., Briem, L. and Vortisch, P. 2020. Understanding social processes of shopping destination choice – an approach to model stability and variability. *Transportation Research Interdisciplinary Perspectives*, 1-9. Available: <http://dx.doi.org/10.1016/j.trip.2020.100183> (Accessed 02 April 2024).

Putri, N. R. R., Rahadi, A. S. and Murtaqi, I. 2017. A conceptual study on the use of electronic payment instruments is being adopted among Generation Z in Bandung City. *Journal of Global Business and Social Entrepreneurship*, 3(9): 32-40.

PwC. 2023. *South African Retail Outlook 2023*. PwC. Available: <https://www.pwc.co.za/en/publications/south-african-retail-sentiment-index.html> (Accessed 10 August 2025).

PwC. 2018c. *Total Retail 2017 - Retail and consumer*. Available: <https://www.pwc.co.uk/industries/retail-consumer/insights/total-retail-2017/simplicity.html> (Accessed December 13 2023).

PwC. 2018a. *From mall to mobile: Adjusting to new consumer habits*. Available: <https://www.pwc.be/en/news-publications/publications/2018/from-mall-to-mobile.html> (Accessed December 13 2023).

PwC. 2018b. *Global Consumer Insights Survey 2018*. Available: <https://www.pwc.com/gx/en/industries/consumer-markets/consumer-insights-survey.html> (Accessed December 13 2023).

Quach, S., Barari, M., Moudry, D. V. and Quach, K. 2022. Service integration in omnichannel retailing and its impact on customer experience. *Journal of Retailing and Consumer Services*, 65, 102267

QuestionPro. 2022. *Correlation analysis*. Available: <https://www.questionpro.com/features/correlation-analysis.html> (Accessed 15 December 2022).

Quilisch-Rock, C. 2023. *Matrix Channel Marketing: The Evolution of Retail Engagement*. Available: <https://www.linkedin.com/pulse/matrix-channel-marketing-evolution-retail-engagement-quilisch-rock-5zfzc/> (Accessed July 01 2024).

QwertyDigital. 2017. *The digital landscape in South Africa 2017*. Available: <https://qwertydigital.co.za/wp-content/uploads/2017/08/DigitalStatistics-in-South-Africa-2017-Report.pdf> (Accessed 12 March 2024).

Radanliev, P. 2023. Cyber diplomacy: defining the opportunities for cybersecurity and risks from Artificial Intelligence, IoT, Blockchains and Quantum Computing. *Journal of Cyber Security Technology*. Available: <https://doi.org/10.1080/23742917.2024.2312671> (Accessed 11 August 2024).

Rajaretnam, T. 2015. *Statistics for social sciences*. New Delhi: Sage

Rahman, Z. 2003. Internet-based supply chain management: using the internet to revolutionise your business. *International Journal of Information Management*, 23: 493–505. <https://doi.org/10.1016/j.ijinfomgt.2003.09.004> (Accessed 18 December 2023).

Ramchander, M. 2018. Industry 4.0: A systematic review of surveys. *Southern African Business Review*, 23: 1-23. Available: <https://doi.org/10.25159/1998-8125/6032> (Accessed 15 March 2024).

Ramanathan, U., Subramanian, N. and Parrott, G. 2014. Role of Return Management in Consumer Satisfaction, *Journal of Retailing*, 90(1): 22-29.

Remler, D. K. and Van Ryzin, G. G. 2014. *Research methods in practice: strategies for Description and causation*. 2nd ed. London: Sage Publications.

Renno, R. 2024. *Retail store analytics: the missing piece to omnichannel success*. Available: <https://www.jabil.com/blog/retail-analytics-in-stores.html> (Accessed 19 March 2024).

Retail Capital. 2024. *FINFORMATION: What Your Business Needs to Know About POPIA*. Available: <https://www.retailcapital.co.za/finformation-what-your-business-needs-to-know-about-popia/> (Accessed 11 August 2025).

Rahman, M. F. and Hossain, M. S. 2023. The impact of website quality on online compulsive buying behaviour: evidence from online shopping organisations. *South Asian Journal of Marketing*, 4(1): 1-16.

Rahaman, M., Sarker, I.H. and Hossain, M. S., 2020. Evaluation of Payment Card Industry Data Security Standard (PCI DSS) for e-commerce websites. Available: <https://arxiv.org/abs/2002.02855> (Accessed 27 December 2024).

RCS. 2024. Five trends driving change in SA's retail industry. Available: <https://rcs.co.za/media/five-trends-driving-change-in-sa-s-retail-industry/> (Accessed 31 January 2025).

Research Portal. 2023. A cross-cultural study of gender differences in omnichannel retailing. *Research Portal Northumbria University*. Available: <https://researchportal.northumbria.ac.uk> (Accessed 5 January 2025).

Riar, M., Korbel, J. J., Xi, N., Zarnekow, R. and Hamari, J. 2021. The Use of Augmented Reality in Retail: A Review of Literature. *Proceedings of the 54th Hawaii International Conference on System Sciences*. Available: <https://hdl.handle.net/10125/70689> (Accessed 18 March 2024).

Rigby, D. 2011. The Future of Shopping. *Harvard Business Review* 89 (12): 65–76. Available: doi: <https://doi.org/10.1007/978-1-349-14797-7> (Accessed 12 December 2023).

Rintamäki, T., Spence, M., Saarijärvi, H., Joensuu, M. and Yrjölä, M. 2021. The role of return policies in shaping consumer loyalty and satisfaction. *International Journal of Physical Distribution and Logistics Management*, 46(6-7): 584-605.

Rizzo, E. 2019. *The evolution of omnichannel retail*. Available: <https://www.forbes.com/sites/forbestechcouncil/2019/10/04/the-evolution-of-omnichannel-retail/?sh=6f461072903a> (Accessed 12 December 2023).

Rizaldi, A. and Madany, Z. 2021. Impact of e-commerce in industry. *International Journal of Research and Applied Technology (INJURATECH)*, 1(2): 283-288.

Rogers, M. and Peppers, D. 2020. Convenience and Consumer Loyalty in E-Commerce Returns, *Journal of Marketing Research*, 57(4): 199-211.

Roggeveen, A. L. and Sethuraman, R. 2020. How the COVID-19 pandemic may change the world of retailing, *Journal of Retailing*, 96(2): 169-171. Available: <https://doi.org/10.1016%2Fj.jretai.2020.04.002> (Accessed 12 December 2023).

Rose, S., Spinks, N. and Canhoto, A. I. 2015. *Management research applying the principles*. Oxon: Routledge.

Rosenthal, G. 2018. *Interpretive Social Research*. Göttingen: Göttingen University Press.

Rosário, A. and Raimundo, R. 2021. Consumer marketing strategy and E-commerce in the last decade: a literature review. *Journal of theoretical and applied electronic commerce research*, 16(7): 3003-3024.

Rudrabasavaraj, M. N. 2010. *Dynamic Global Retailing Management*. 1st ed. Himalaya Publishing House.

Ruel, E., Wagner, W. E. and Gillespie, J. 2016. *The practice of survey research*. London: Sage.

Rust, R. T. and Oliver, R. L. 1994. Service quality: Insights and managerial implications from the frontier. In: Rust, R. T. and Oliver, R. L. (Eds.), *Service Quality: New Directions in Theory and Practice*. Thousand Oaks: Sage: 1-19.

Ryan, R. and Deci, E. 2019. Brick by brick: The origins, development and future of self-determination theory. [online] Available: <https://selfdeterminationtheory.org/wp-content/uploads/2019/06/2019> (Accessed 26 December 2024).

Ryu, J. S., Fortenberry, S. and Warrington, P. 2023. Understanding Omnichannel Shopping Behaviours: Incorporating Channel Integration into The Theory of Reasoned Action. *Journal Of Consumer Sciences*, 8(1): 15-26. Available: <https://doi.org/10.29244/jcs.8.1.15-26> (Accessed 26 December 2024).

Ryu, K., Fortenberry, J. L. and Warrington, T. 2023. Understanding Millennials and Gen Z in omnichannel retail. *Journal of Marketing Studies*, 41(1): 17-22.

SABRIC. 2023. *Annual Crime Stats Report*. Available: <https://www.sabric.co.za/wp-content/uploads/2024/10/SABRIC-Annual-Crime-Stats-2023-2.pdf> (Accessed 10 August 2025).

SAIIA. 2020. *The Digital Economy and Ecommerce in Africa – Drivers of the African Free Trade Area?* Available: <https://saiia.org.za/wp-content/uploads/2020/05/The-digital-economy-and-ecommerce-in-Africa-Special-Report.pdf> (Accessed 11 August 2025).

Sakrabani, P., Teoh, A. P. and Amran, A. 2019. Strategic impact of retail 4.0 on retailers' performance in Malaysia. *Strategic Direction*. Available: https://www.emerald.com/insight/content/doi/10.1108/SD-05-2019-0099/full/html?casa_token=b_lqxRrGQcAAAAA:YqBYg6mtDIaDrpZkBgMihU1gUL_5cwsjQGD7AI9OWEHrl8z9mnp5UZKqjX7t_1TDz_rctoBAOu_YCjzbWsFGLFyLnRZvJPVLpzzrVd7YdxcZqq_u8Ldkkpw (Accessed June 23 2022).

Salkind, N. J. 2022. *Exploring research*. 10th ed. Essex: Pearson Education.

Salmon, P. M., Carden, T. and Hancock, P. A. 2021. Putting the humanity into inhuman systems: How human factors and ergonomics can be used to manage the risks associated with artificial general intelligence. *Human Factors and Ergonomics in Manufacturing and Service Industries*, 31(2): 223-236. Available: <https://doi.org/10.1002/hfm.20883> (Accessed 16 March 2024).

Sam's Club. (n.d.). *Scan And Go*. Available: <https://www.samsclub.com/content/scan-and-go> (Accessed 16 July 2024).

Santos, S. and Gonçalves, H. M. 2021. The consumer decision journey: A literature review of the foundational models and theories and a future perspective. *Technology forecasting and social change*, 173: 1-14.

SARB. 2024. *Digital Payments Roadmap: Enabling Inclusive Growth*. Pretoria: South African Reserve Bank. Available: <https://www.resbank.co.za/en/home/publications/publication-detail-pages/media-releases/2024/The-SARB-releases-Roadmap-towards-inclusive-digital-payments> (Accessed 09 August 2025).

Saunders, M. N. K., Lewis, P. and Thornhill, A. 2019. *Research methods for business students*. 8th ed. Harlow: Pearson Education Limited.

Scheller-Wolf, A., Shrivastava, S. and Vaidyanathan, R., 2017. *Consumer return policies in omnichannel operations*. Available: https://www.academia.edu/93799084/Consumer_Return_Policies_in_Omnichannel_Operations (Accessed 27 December 2024).

Schau, H. J. and Gilly, M. C. 2003. We Are What We Post? Self-Presentation in Personal Web Space, *Journal of Consumer Research*, 30(3): 385-404.

Schertzer, J-M. 2024. *AI and Personalization: What will AI in Retail Marketing Look Like?* Available: <https://eagleeye.com/blog/ai-in-retail-marketing> (Accessed 05 July 2024).

Schiessl, D., Korelo, J. and Dias, H. B. A. 2023. How online shopping experiences shape consumer webrooming behaviour. *Marketing Intelligence and Planning*, 41(1): 16-30.

Schiffman, L. G. and Kanuk, L. L. 2014. *Consumer Behaviour*. 11th ed. Boston: Pearson.

Schiffman, L. G. and Wisenblit, J. 2019. *Consumer Behaviour*. 12th ed. Harlow: Pearson Education.

Schwab, K. 2016. The Fourth Industrial Revolution: *What It Means and How to Respond*. World Economic Forum.

Schober, P., Boer, C. and Schwarte, L. A. 2018. Correlation Coefficients: Appropriate Use and Interpretation. *Anesthesia and Analgesia*. Available: <http://dx.doi.org/10.1213/ANE.0000000000002864> (Accessed 08 July 2024).

Schlossberg, M. 2020. Generational distinctions in consumer behaviour. *Consumer Insights Journal*, 38(2): 58-67.

Sen, A. 1977. Rational fools: A critique of the behavioral foundations of economic theory. *Philosophy and Public Affairs*, 6(4): 317-344.

Sekaran, U. and Bougie, R. 2019. *Research methods for business: A skill-building approach*. 8th ed. Chichester: Wiley.

Sensuse, D. I. and Lusa, J. 2024. Time-saving features in online grocery shopping. *Journal of Retail and Consumer Services*, 78: 1-12.

Sesé Oliván, F. J., Verhoef, P. and Melero, I. 2016. Recasting the customer experience in today's omni-channel environment. *Universia Business Review*. 50: 18-37. DOI: <https://10.3232/UBR.2016.V13.N2.01> (Accessed 12 December 2023).

Sethuraman, R., Tellis, G. J. and Briesch, R. A. 2005. How Well Does Advertising Work? Generalizations from Meta-Analysis, *Journal of Marketing Research*, 42(1): 74-89.

Shankar, V., Douglass, T., Hennessey, J., Kalyanam, K., Setia, P., Golmohammadi, A., Tirunillai, S., Bull, J. S. and Waddoups, R. 2020. How Technology Is Changing Retail. *Journal of Retailing*, 97(1), 13–27.

Sharma, B. 2008. *Strategic Retail Management*. Book Enclave.

Sharma, A. and Dey, S. 2020. A Shift from Cash on Delivery to Digital Payments, *Journal of Internet Commerce*, 19(2): 218-232.

Shankar, V., Inman, J. J., Mantrala, M., Kelley, E. and Rizley, R. 2011. Innovations in shopper marketing: Current insights and future research issues. *Journal of Retailing*, 87(Supplement 1): S29-S42.

Shen, X. L., Li, Y. J., Sun, Y. and Wang, N. 2018. Channel integration quality, perceived fluency and omnichannel service usage: The moderating roles of internal and external usage experience. *Decision Support Systems*, 109: 61–73. <https://doi.org/10.1016/j.dss.2018.01.006> (Accessed 18 August 2024).

Sheehan, E. 2023. Deloitte global powers of retailing. *Deloitte*. Available: <https://www.deloitte.com/global/en/Industries/consumer/analysis/the-global-powers-of-retailing.html> (Accessed 20 December 2023).

Sherman, W. R. and Craig, A. B. 2002. Understanding virtual reality: Interface, application and design. Elsevier.

Shi, S., Wang, Y., Chen, X. and Zhang, Q. 2020. Conceptualisation of omnichannel customer experience and its impact on shopping intention: A mixed-method approach. *International Journal of Information Management*, 50, 325–336. Available: https://doi.org/10.1007/978-3-319-47331-4_18 (Accessed 23 November 2020).

Shoprite. 2024a. *Shoprite Holdings Integrated Annual Report 2024*. Cape Town: Shoprite Holdings. Available: <https://www.shopriteholdings.co.za/docs/shp-ir-2024.pdf> (Accessed 09 August 2025).

Shrivastava, A., Prakash, R. and Ratna, P. 2019. The growth of mobile commerce and its challenges. *International Journal of Retail and Distribution Management*, 47(4): 519-531.

Shukla, P. S. and Nigam, P. V. 2018. E- Shopping using Mobile Apps and the Emerging Consumer in the Digital Age of Retail Hyper personalization: An Insight. *Pacific Business Review International*, 10(10): 131-139.

Singh, P. 2023. *Showroom and webrooming an overview*. Available: <https://www.linkedin.com/pulse/showrooming-webrooming-an-overview-pinky-singh/> (Accessed 19 March 2024).

Singh, A., Tiwari, A. and Reddy, M. 2019. COD Preferences in Emerging Markets, *Asian Journal of Marketing*, 12(3): 309-319.

Sivaramakrishnan, S., Wan, F. and Tang, Z. 2007. Giving an "e-human touch" to e-tailing: The moderating roles of static information quantity and consumption motive in the effectiveness of an anthropomorphic information agent. *Journal of Interactive Marketing*, 21(1): 60–75.

Silver, L., Stevens, R., Wrenn, B. and Loudon, D. 2013. *The essentials of marketing Research*. 3rd ed. New York: Routledge.

Singh, K. K. 2022. *Research methodology in social science*. New Delhi: K K Publications.

Singh, K. 2007. *Quantitative social research methods*. New Delhi: Sage Publications.

SME South Africa. 2024. *What SMEs Need to Know About the Rise of Mobile Commerce in South Africa*. Available: <https://smesouthafrica.co.za/what-smes-need-to-know-about-the-rise-of-mobile-commerce-in-south-africa/> (Accessed July 01 2024).

Smiley, M., 2016. Oreo brings its wonder Vault virtual reality. *Retrieved October 11*, p.2019.

South Africa Power Africa Fact Sheet. 2019. Available: <http://www.statssa.gov.za/?p=11292> (Accessed 10 April 2024).

Solat, E., 2017. A survey on security in electronic payment systems. Available: <https://arxiv.org/abs/1701.04556> (Accessed 27 December 2024).

Song, J., Lee, M., Kim, S. and Park, H. 2024. Brick-and-mortar retailing: Trends and consumer dynamics in a post-pandemic world. *International Journal of Retail and Distribution Management*, 52(1): 1-15.

Soqinase, A., Naidoo, C., Mphuti, I.M., Laureles, K. and Murwa, R.M. 2015. *Analysis of the 4th industrial revolution towards human resource planning of the retail sector in South Africa*. Available: <https://www.wrseta.org.za> (Accessed 04 April 2020).

Smith, T. and Anderson, J. 2023. Generational cohorts and omnichannel shopping preferences. *Journal of Consumer Marketing*, 40(2): 45-56.

Smith, J. and Noble, H. 2014. Bias in research. *Evidence-based nursing*, 17(4): 100-101. Available: <https://ebn.bmj.com/content/ebnurs/17/4/100.full.pdf> (Accessed 16 December 2022).

Smith, M. D. and Brynjolfsson, E. 2001. Consumer decision-making at an Internet shopbot: Brand still matters. *Journal of Industrial Economics*, 49(4): 541-558.

Smith, J. 2022. *How Does Online Shopping Save Time?* Available: <https://www.theodysseyonline.com/online-shopping-2658327471> (Accessed 27 December 2024).

Smith, A. N., Fischer, E. and Yongjian, C. 2012. How Does Brand-Related User-Generated Content Differ across YouTube, Facebook and Twitter? *Journal of Interactive Marketing*, 26(2): 83-91.

Smith, P. 2020. Woolworths plans AI-driven stores as cloud transformation bears fruit. Available: <https://www.afr.com/technology/woolworths-plans-ai-driven-stores-as-cloud-transformation-bears-fruit-20201030-p56a92> (Accessed 11 August 2025).

Solomon, M.R. 2004. *Consumer Behavior: Buying, Having and Being*. 6th ed. Upper Saddle River, NJ: Pearson Prentice Hall.

Solomon, M. R., Dahl, D. W., White, K., Zaichkowsky, J. L. and Polegato, R. 2019. *Consumer Behavior: Buying, Having and Being*. Place: Pearson Education.

Soqinase, A., Naidoo, C., Mphuti, I. M., Laureles, K. and Murwa, R. M. 2015. *Analysis of the 4th industrial revolution towards human resource planning of the retail sector in South Africa*. Available: <https://www.wrseta.org.za> (Accessed 04 April 2020).

Srinivasan, R., Gaur, A. and Khandelwal, V. 2019. Evolving Trends in Online Returns Management, *Journal of Business Logistics*, 40(1): 78-95.

Srivastava, A. and Thaichon, P. 2023. What motivates consumers to be in line with online shopping? A systematic literature review and discussion of future research perspectives. *Asia Pacific Journal of Marketing and Logistics*, 35(3): 687-725.

Staff Writera. 2022. *Tech trends and major shopping changes coming to South Africa*. Available: <https://businesstech.co.za/news/technology/589520/tech-trends-and-shopping-changes-coming-to-south-africa-woolworths/> (Accessed June 26 2022).

Staff Writerb. 2022. *Warning for shopping centres in South Africa as retail sales fall*. Available: <https://businesstech.co.za/news/business-opinion/617795/warning-for-shopping-centres-in-south-africa-as-retail-sales-fall/> (Accessed August 20 2022).

Standard AI. 2023. Unlock the Power of AI in Retail. Available: <https://standard.ai/> (Accessed 01 April 2025).

Statistics South Africa. 2023. *Census 2022 Population Count Results October 10, 2023*. Available: <https://www.statssa.gov.za/?p=16716> (Accessed 12 December 2023).

Statista. 2021. *Internet usage frequency in South Africa as of January 2021*. Available: <https://www.statista.com/statistics/685134/south-africa-digital-population/> (Accessed 14 March 2024).

Stiehler-Mulder, B and Frazer, M. 2020. *#BizTrends2020: SA trends for brick-and-mortar stores - the present and the future*. Available: <https://www.bizcommunity.com/Article/196/731/199888.html> (Accessed 20 December 2023).

Stiehler-Mulder, B and Mehlahe, K. 2021. *South African retailers' readiness for the Fourth Industrial Revolution*. Available: <https://www.bizcommunity.com/Article/196/168/222529.html> (Accessed 20 December 2023).

Stocchi, L., Pourazad, N., Michaelidou, N., Tanusondjaja, A. and Harrigan, P. 2022. Marketing research on Mobile apps: past, present and future. *Journal of the Academy of Marketing Science*, Springer, 50(2): 195-225.

Stoltman, J., Morgan, C. and Anglin, A. H. 1999. Situational influences on shoppers' evaluations of store attributes. *The International Review of Retail, Distribution and Consumer Research*, 9(2): 145-160.

Stevens, R. E., Loudon, D. L., Ruddick, M. E., Wrenn, B. and Sherwood, P. K. 2012. *The marketing research guide*. 2nd ed. New York: Routledge.

Stratoflow. 2023. Amazon Product Recommendation System: How Does It Work? Available: <https://stratoflow.com/amazon-recommendation-system/> (Accessed 01 April 2025).

Struwig, F. W. and Stead, G. B. 2013. *Research: planning, designing and reporting*. Cape Town: Pearson Education.

Strydom, J. 2024. *Introduction to Marketing*. 6th ed. Sandton: Juta.

Subramanian, J. 2023. *Visual search and image recognition in Ecommerce*. Available: <https://www.linkedin.com/pulse/visual-search-image-recognition-ecommerce-jheeva-subramanian/> (Accessed 04 April 2024).

Sudirjo, F., Ratnawati, R., Hadiyati, R., Sutaguna, I.N.T. and Yusuf, M., 2023. The influence of online customer reviews and e-service quality on buying decisions in electronic commerce. *Journal of Management and Creative Business*, 1(2): 156-181.

Sürücü, L. and Maslakçı, A. 2020. Validity And Reliability in Quantitative Research. *Business and Management Studies: An International Journal*, 3(8): 2694-2726. Available: https://www.researchgate.net/deref/http%3A%2F%2Fdx.doi.org%2F10.15295%2Fbmij.v8i3.1540?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6InB1YmxpY2F0aW9uliwicGFnZSI6InB1YmxpY2F0aW9uliwicG9zaXRpb24iOiJwYWdlQ29udGVudCJ9fQ (Accessed 14 March 2024).

Swami, S. and Shah, J. 2013. Channel coordination in green supply chain management. *Journal of the Operation Research Society*, 64: 336–351. Available: <https://doi.org/10.1057/jors.2012.44> (Accessed 12 December 2023).

Swami, S. and Shah, M. 2013. Single-channel versus multi-channel retailing: Impacts on store performance. *Retailing Insights*, 28(3): 339-356.

Sweeney, J. C, Souta, G. N. and Johnson, L. W. 1999. The role of perceived risk in the quality–value relationship: a study in a retail environment. *Journal of Retailing*, 75(1): 77 – 105.

Swift Admin. 2021. *The social commerce role in omnichannel marketing*. Available: <https://swiftterm.com/the-social-commerce-role-in-omnichannel-marketing/> (Accessed 02 August 2021).

Syaglova, Y. and Snezana Mojsosvska, S. 2019. Digital transformation in marketing and business-implications on retail technologies and customer engagement. *Dubrovnik International Economic Meeting*, 4(1): 215-225. Available: <https://search.proquest.com/docview/2406321458/fulltextPDF/F5CED0EC48814E6CPQ/1?accountid=10612> (Accessed 02 July 2020).

Taher, G. 2021. E-commerce: advantages and limitations. *International Journal of Academic Research in Accounting Finance and Management Sciences*, 11(1): 153-165.

Taherdoost, H. 2019. What is the best response scale for survey and questionnaire design? Review of different lengths of rating scale/attitude scale / Likert scale, *International Journal of Academic Research in Management*, 8(1): 1–10. Available: https://www.researchgate.net/publication/343994538_What_Is_the_Best_Response_Scale_for_Survey_and_Questionnaire_Design_Review_of_Different_Lengths_of_Rating_Scale_Attitude_Scale_Likert_Scale (Accessed 10 August 2025).

Tanadi, T., Samadi, B. and Gharlegghi, B. 2015. The impact of perceived risks and perceived benefits to improve an online intention among generation-Y in Malaysia, *Asian Social Science* 11(26), 226-238. Available: <https://doi.org/10.5539/ass.v11n26p226> (Accessed 09 July 2024).

Takealot. 2023. *Takealot Group Annual Report 2023*. Takealot Online (Pty) Ltd. Available: <https://www.takealot.com/annual-report/PLID16515043?srsId=AfmBOopP7SVzwaBiCrdbLJIKNvAPDT2F8WA-8jpkYxJYoCe03cRT9ZAo> (Accessed 10 August 2025).

Takle, B. 2017. Adidas TERREX VR experience: Bridging outdoor adventures and retail. *Sportswear Retail Technology Review*, 9(1): 32-39.

Tapscott, D. and Tapscott, A., 2016. *Blockchain revolution: How the technology behind bitcoin is changing money, business and the world*. Portfolio Penguin.

Tavakol, M. and Dennick, R. 2011. Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2: 53-55.

TechCrunch. 2019. *Meet Caper, the AI self-checkout shopping cart*. Available: <https://techcrunch.com/2019/01/10/caper-shopping-cart/> (Accessed 12 March 2022).

Tenekecioğlu, B., Tokol T., Çalık N., Karalar R., Timur N., Öztürk S. 2005. Pazarlama Yönetimi, Anadolu Üniversitesi Yayını, No. 1478.

Tetteh, A. and Xu, Q. 2014. Supply chain distribution networks: single, dual and omnichannel. *Interdisciplinary Journal of Research in Business*, 3(9): 63-73. Available: https://www.researchgate.net/publication/325226981_Supply_chain_distribution_networks_single_dual_and_Omni-channel?enrichId=rgreq-381aa65946c2b3bcf760e47233981439-XXX&enrichSource=Y292ZXJQYWdlOzMyNTIyNjk4MTtBUzo2MzkyMTY0NDY4NjU0MDIAMTUyOTQxMjQ4NTY5Ng%3D%3D&el=1_x_2&esc=publicationCoverPdf (Accessed 12 December 2023).

Tetteh, E. and Xu, L. 2014. Brick-and-mortar retailing: Managing inventory in traditional retail stores. *Journal of Operations and Supply Chain Management*, 7(2): 63-78.

TFG. 2024. *TFG Integrated Annual Report 2024*. Cape Town: The Foschini Group. Available: <https://tfglimited.co.za/wp-content/uploads/2024/08/Integrated-Annual-Report-2024.pdf> (Accessed 09 August 2025).

Thaichon, P., Quach, S., Barari, M. and Nguyen, M. 2024. Exploring the role of omnichannel retailing technologies: future research directions. *Australasian Marketing Journal*, 32(2): 162-177. Available: DOI: <https://10.1177/14413582231167664journals.sagepub.com/home/anz> (Accessed 31 January 2025).

Thakur, R. and Srivastava, M. 2015, A study on the impact of consumer risk perception and innovativeness on online shopping in India, *International Journal of Retail and Distribution Management*, 43(2), 148-166. Available: <https://doi.org/10.1108/IJRDM-06-2013-0128> (Accessed 09 July 2024).

Thakur, R. and Srivastava, M. 2018. Adoption Readiness of Digital Payments, *Journal of Retailing and Consumer Services*, 41: 55-63.

Think with Google. (n.d.). Winning Omni-Channel Shoppers in Their Micro-Moments. Available: <https://www.thinkwithgoogle.com/consumer-insights/consumer-trends/winning-omni-channel-shoppers-micro-moments/> (Accessed 01 April 2025).

Thomas, A., Lewis, G. 2007. Developing an SME-based integrated TPM-Six Sigma strategy. *International Journal of Six Sigma and Competitive Advantage*, 3: 228–247. Available: <http://dx.doi.org/10.1504/IJSSCA.2007.015067> (Accessed 15 March 2024).

The Home Depot. 2023. *2023 IAC Transcript*. Available: <https://ir.homedepot.com/~media/Files/H/HomeDepot-IR/reports-and-presentations/2023-iac-transcript-vf.pdf> (Accessed 24 March 2024).

The packer staff. 2023. *Smart shelf retail tags offered to help shopper experience*. Available: <https://www.thepacker.com/news/packer-tech/smart-shelf-retail-tags-offered-help-shopper-experience> (Available 14 March 2024).

- The Times. 2023. *Retailers warned against ending free returns*. Available: <https://www.thetimes.co.uk/article/shoppers-warn-retailers-well-buy-elsewhere-if-you-end-free-returns-dxnbcgb3> (Accessed 27 December 2024).
- Thusi, T., Ndlovu, P., Magagula, S. and Mhlongo, K. 2022. Reluctance to adopt online grocery shopping in South Africa. *African Journal of Business Management*, 16(4): 65-80.
- TransUnion. 2020. *Gen Z in South Africa: The new powerhouse consumers*. TransUnion Market Reports. Available: <https://www.transunion.com> (Accessed 5 January 2025).
- Tracy, S. J. 2012. *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. Chichester, West Sussex: John Wiley-Blackwell.
- Tsai, J. Y. and Yeh, C. H., 2010. The influence of information security risks on online shopping behaviors. *Journal of Academic Research*. Available: <https://core.ac.uk/download/pdf/301342309.pdf> (Accessed 27 December 2024).
- Tsai, J.Y., Egelman, S., Cranor, L. and Acquisti, A. 2011. The effect of online privacy information on purchasing behavior: An experimental study. *Information Systems Research*, 22(2): 254–268.
- Ullman, J. B. and Bentler, P. M. 2003. Structural equation modeling. In Schinka, J. A. and Velicer, W. F. *Handbook of psychology: Research methods in psychology*, 2: 607-634. John Wiley and Sons Inc.
- Uncles, M. D., Dowling, G. R. and Hammond, K. 2013. Customer Loyalty and Customer Loyalty Programs, *Journal of Consumer Marketing*, 20(4): 45-56.
- UNCTAD. 2021. How COVID-19 triggered the digital and e-commerce turning point. United Nations Conference on Trade and Development. Available: <https://unctad.org/news/how-covid-19-triggered-digital-and-e-commerce-turning-point#:~:text=As%20lockdowns%20became%20the%20new,to%20about%2017%25%20in%202020>. (Accessed 23 June 2022).
- Urgerer, C. 2019. *#BizTrends2019: The future of the South African in-store retail experience*. Available: <https://www.bizcommunity.com/Article/196/731/186375.html> (Accessed 20 December 2023).
- Ungerer, C. 2020. *#Biztrends 2020: How SA retailers can keep growing in a digital world*. Available: <https://www.bizcommunity.com/Article/196/731/199182.html> (Accessed 02 June 2020).
- Ungiesbee, B., Holland, D. and Vembar, K. 2020. *The impact of the coronavirus on retail*. Available: <http://www.retailDive.com/news/the-impact-of-the-coronavirus-on-retail/573522> (Accessed 02 July 2020).
- Urrego, J. A. M., Pineda, V. G. And Restrepo, L. A. M. 2024. The power of social media in the decision-making of current and future professionals: a crucial analysis in the digital era. *Cogent*

Business and Management, 11(1): 1-30. Available:

<https://doi.org/10.1080/23311975.2024.2421411> (Accessed 11 November 2024).

Van Droogenbroeck, E. and Van Hove, L. 2021. Habit formation in online grocery shopping. *Journal of Retailing and Consumer Services*, 58: 1-10.

Van Delft, W. C. J. M. 2013. Omnichannel shopping behaviour during the customer journey is an empirical study into the contribution of omnichannel shopping characteristics during the customer journey by consumer segments. Masters. Eindhoven University of Technology. Available: <https://research.tue.nl/en/studentTheses/omni-channel-shopping-behaviour-during-the-customer-journey> (Accessed 03 July 2024).

Van de Sanden, Willems, K. and Brengman, M. 2020. How do consumers process digital display ads in-store? The effect of location, content and goal relevance. *Journal of Retailing and Consumer Services*, 56: 1-12. Available: <https://doi.org/10.1016/j.jretconser.2020.102177> (Accessed 05 April 2024).

Van Vliet, H. 2014. Cross-Mediascapes, Amsterdam: HvA Publicaties.

Vhatkar, M.S., Raut, R.D., Gokhale, R., Cheikhrouhou, N. and Akarte, M. 2024. A glimpse of the future sustainable digital omnichannel retailing emerges-A systematic literature review. *Journal of Cleaner Production*, 442(9):141111. Available: <http://dx.doi.org/10.1016/j.jclepro.2024.141111> (Accessed 26 December 2024).

Verhoef, P. C., Neslin, S. A. and Vroomen, B. 2007. Multi-channel customer management: understanding the research-shopper phenomenon, *International Journal of Research in Marketing*. 24(2):129-148. Available: <https://doi.org/10.1016/j.ijresmar.2006.11.002> (Accessed 12 December 2022).

Verhoef, P., Kannan, P. and Inman, J. 2015. From multi-channel retailing to Omni-channel retailing: Introduction to the special issue on multi-channel retailing. *Journal of Retailing*, 91(2): 174-181. Available: <https://search.proquest.com/docview/1680399884?accountid=10612&pq-origsite=summon> (Accessed 20 May 2020).

Venkatesh, V., Morris, M. G., Davis, G. B. and Davis, F. D. 2003. Unified Theory of Acceptance and Use of Technology (UTAUT) APA *PsycTests*. Available: <https://doi.org/10.1037/t57185-000> (Accessed 20 December 2024).

Vitari, C. and Pillet, J-C. Scale adaptation of MIS measures and their implications on MIS scholarship. Colloque de l'AIM, May 2023, Dijon (Bourgogne), France. fahal-04118246f

Vogt, W. P., Vogt, E. R., Gardner, D. C. and Haeffele, L. M. 2014. *Selecting the right Analyses for your data quantitative, qualitative and mixed methods*. New York: The Guilford Press.

Vohaz, A. 2020. *Customer online shopping behaviour in 2020 (Trends)*. Available: <https://www.omniconvert.com/blog/customer-online-shopping-behaviour-in-2020-trends.html> (Accessed 03 June 2020).

- Vrechopoulos, A., Apostolou, K. and Koutsouris, V. 2009. Virtual reality retailing on the web: emerging consumer behavioural patterns. *The International Review of Retail, Distribution and Consumer Research*, 19(5): 469-482.
- Vrechopoulos, A. P., Keefe, R. M. O., Doukidis, G. I. and Siomkos, G. J. 2004. Virtual store layout: an experimental comparison in the context of grocery retail. *Journal of Retailing*, 80.1:13-22.
- Wallace, D. W., Giese, J. L. and Johnson, J. L. 2004. Customer retailer loyalty in the context of multiple channel strategies. *Journal of Retailing*, 80(4): 249–263. Available: <https://doi.org/10.1016/j.jretai.2004.10.002> (Accessed 19 December 2023).
- Wale, E., Chipfupa, U. and Hadebe, N. 2021. Towards identifying enablers and inhibitors to on-farm entrepreneurship: evidence from smallholders in KwaZulu-Natal, South Africa. *Heliyon*, 7(1).
- Walmart. 2018. *Eden: The Tech That's Bringing Fresher Groceries to You*. Available: <https://corporate.walmart.com/news/2018/03/01/eden-the-tech-thats-bringing-fresher-groceries-to-you> (Accessed 01 April 2025).
- Wang, W., Guo, X. and Chen, Y. 2018. Customer Preferences in Returns for High-Value Goods, *Journal of Business Research*, 89: 91-101.
- Warhurst, M. 2023. *The Value of Personalized Product Recommendations in E-Commerce*. Available: <https://www.bloomreach.com/en/blog/2022/why-product-recommendations-are-key-to-winning-with-e-commerce-personalization> (Accessed 05 April 2024).
- Watras, J. 2017. *Mobile orders surpassing desktop: A review. E-commerce Trends Report*: 30-35.
- Webb, K.L. 2002. Managing channels of distribution in the age of electronic commerce. *Industrial Marketing Management*, 31 (2): 95–102. Available: [https://doi.org/10.1016/S0019-8501\(01\)00181-X](https://doi.org/10.1016/S0019-8501(01)00181-X) (Accessed 12 December 2023).
- Weber, F. and Schütte, R. 2019. A Domain-Oriented Analysis of the Impact of Machine Learning—The Case of Retailing. *Big Data and Cognitive Computing*, 3(1): 1-14. Available: <https://doi.org/10.3390/bdcc3010011> (Accessed 17 March 2024).
- Weber, S. and Badenhorst-Weiss, J. 2018. Barriers to online shopping in South Africa. *Journal of Retail Management*, 44(3): 123-135.
- Webster, C. C. 2020. *6 ways COVID-19 has changed Omnichannel marketing*. Available: <https://www.targetmarketingmag.com/article/6-ways-covid-19-changed-omnichannel-marketing/> (Accessed 21 October 2020).
- Wetcher-Hendricks, D. 2011. *Analysing quantitative data, an introduction for social researchers*. New Jersey: John Wiley and Sons.

Wikipedia. 2024. *Demographic targeting*. Wikipedia. Available: <https://en.wikipedia.org> (Accessed 5 January 2025).

WGSN, 2016. *Understanding Generation Z: Insights for retailers*. WGSN Consumer Trends Report. Available: <https://www.wgsn.com> (Accessed 5 January 2025).

Whyte, J. 2002. *Virtual reality and the built environment*. Routledge.

Wiid, J. and Diggines, C. N. 2021. *Marketing research*. 4th ed. Cape Town: Juta.

Wilson, A. 2019. *Marketing research*. 4th ed. London: Macmillan International.

Wingfield, A. 2020. *#Biztrends 2020: Africa's double-edged consumer demand*. Available: <https://www.bizcommunity.africa/Article/410/731/199397.html> (Accessed 02 June 2020).

Winkler, N. 2019. *Omnichannel vs multi-channel: What is the difference and why does it matter?* Available: <https://www.shopify.com/enterprise/omni-channel-vs-multi-channel> (Accessed 20 December 2023).

Wolf, C., Joye, D., Smith, T. W. and Fu, Y. C. 2016. *The SAGE Handbook of Survey Methodology*. London: Sage.

Woolworths. 2023. *Woolworths Holdings Integrated Annual Report 2023*. Cape Town: Woolworths Holdings. Available: https://www.woolworthsholdings.co.za/wp-content/uploads/2023/10/Integrated_Annual_Report_2023.pdf (Accessed 09 August 2025).

World Economic Forum. 2017. *Global shapers survey: World Economic Forum*. Available : https://www3.weforum.org/docs/WEF_GSC_Annual_Report_2017.pdf (Accessed 14 March 2024).

World Economic Forum. 2019. *The 7 technologies changing your world*. Available: <https://www.weforum.org/agenda/2016/01/a-brief-guide-to-the-technologies-changing-world/> (Accessed 05 October 2020).

Wrigley, E. A. 2018. *Reconsidering the Industrial Revolution*: England.

Wu, C. and Thompson, M. E. 2020. *Sampling theory and practice*. Waterloo: Springer.

Wyner, G. 2011. *Shopper marketing: How to increase purchase decisions at the point of sale*. Place: Kogan Page Publishers.

Xia, L. and Zhang, Z. 2010. The impact of single-channel retailing on pricing and promotions. *International Journal of Research in Marketing*, 27(4): 519-528.

Xia, Y. and Zhang, G. P. 2010. The impact of the online channel on retailers' performances: an empirical evaluation. *Decision Science*, 41(3): 517–546. Available: <https://doi.org/10.1111/j.1540-5915.2010.00279.x> (Accessed 12 December 2023).

- Xu, X. and Jackson, J. E. 2019a. Examining customer channel selection intention in the omni-channel retail environment. *International Journal of Production Economics*, 208: 434–445. <https://doi.org/10.1016/j.ijpe.2018.12.009> (Accessed 18 August 2024).
- Xu, J. and Jackson, T. 2019a. The commitment-trust theory in retailing. *Journal of Retailing*, 95(2): 56-72.
- Xu, H., Teo, H., Tan, B and Agarwal, R. 2010. The Role of Push-Pull Technology in Privacy Calculus: The Case of Location-Based Services. *Journal of Management Information Systems*. 26. 135-174. Available: <https://www.10.2753/MIS0742-1222260305> (Accessed 10 August 2025).
- Yalcinkaya, G. 2019. *Nike app uses AR and AI to scan feet for perfect fit*. Available: <https://www.dezeen.com/2019/05/09/nike-fit-app-ar-ai-trainers/> (Accessed 18 March 2024).
- Yang, T. K., Yeh, C. and Tsai, C. 2018. Consumer attitudes in omnichannel retailing using TAM. *Journal of Marketing Research*, 55(3): 36-50.
- Yang, S., Lu, Y. and Gupta, S. 2021. Mobile Payment in Retail Environments, *Journal of Retailing*, 97(1): 71-84.
- Yao, Q., Hu, C. and Zhou, W. 2023. The impact of customer privacy concerns on service robot adoption intentions: A credence/experience service typology perspective. *Technological Forecasting and Social Change*, 2. Available: <https://doi.org/10.1016/j.techfore.2023.122948> (Accessed 27 March 2024).
- Yasar, K. and Gillis, A. S. 2024. *Internet of Things (IoT)*. Available: <https://www.techtarget.com/iotagenda/definition/Internet-of-Things-IoT> (Accessed 05 July 2024).
- Zaware, N., Pawar, A., Samudre, H. and Kale, S. 2020. Omnichannel consumer buying behaviour: Apprehending the purchasing pattern for mobile buyers in India. *International Journal of Advanced Science and Technology*, 29(3): 1086-1101. Available: <https://www.omnichannel.5942.9202-1-10-2020031520200329-112487-1i12nah.pdf> (Accessed 19 May 2020).
- Zeithaml, V. A., Bitner, M. J. and Gremler, D. D. 2018. *Services Marketing: Integrating Customer Focus Across the Firm*. 7th ed. New York: McGraw-Hill Education.
- Zhang, J., Farris, P. W., Irvin, T. J., Kushwaha, W., Steenburgh, T. J. and Weitz, B. A. 2010. Crafting Integrated Multi-Channel Retailing Strategies. *Journal of Interactive Marketing* 24(2): 168–180. Available: <https://doi.org/10.1016/j.intmar.2010.02.002> (Accessed 12 December 2023).
- Zhang, P. and Benyoucef, M. 2016. Consumer behaviour in social commerce: A literature review. *Decision Support Systems*, 86: 95-108.

Zhang, K. Z. K., Zhao, S. J., Cheung, C. M. K. and Lee, M. K. O. 2014. Examining the influence of online reviews on consumers' decision-making: A heuristic–systematic model. *Decision Support Systems*, 67: 78–89. Available: <https://doi.org/10.1016/j.dss.2014.08.005> (Accessed 12 December 2023).

Zhang, M., Ren, C., Wang, G. A. and He, Z. 2018b. The impact of channel integration on consumer responses in omni-channel retailing: The mediating effect of consumer empowerment. *Electronic Commerce Research and Applications*, 28: 181–193. Available: <https://doi.org/10.1016/j.elerap.2018.02.002> (Accessed 18 August 2024).

Zheng, Z., Podobnik, B., Feng, L. and Li, B. 2012. Changes in cross-correlations as an indicator for systemic risk. *Scientific reports*, 2(1): 888.

Zhuang, H., Popkowski Leszczyc, P. T. L., Lin, Y. 2018. Why is Price Dispersion Higher Online than Offline? The Impact of Retailer Type and Shopping Risk on Price Dispersion. *Journal of Retailing*, 94: 136–153.

APPENDICES

APPENDIX A: ETHICAL APPROVAL



Institutional Research Ethics Committee
Research and Postgraduate Support Directorate
2nd Floor, Berwyn Court
Gate 1, Steve Biko Campus
Durban University of Technology
P O Box 1334, Durban, South Africa, 4001
Tel: 031 373 2375
Email: lavishad@dut.ac.za
http://www.dut.ac.za/research/institutional_research_ethics
www.dut.ac.za

19 May 2022

Ms T Reddy
3 Sanrose Avenue
Chatsworth
Durban
4092

Dear Ms Reddy

Omni-channel shopper behaviour in the emerging South African fourth industrial revolution environment

Ethical Clearance number IREC 032/21

The Institutional Research Ethics Committee acknowledges receipt of your notification regarding the piloting of your data collection tool.

Kindly ensure that participants used for the pilot study are not part of the main study.

In addition, the IREC acknowledges receipt of your gatekeeper permission letters.

Please note that **FULL APPROVAL** is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the IREC according to the IREC SOP's.

Please note that any deviations from the approved proposal require the approval of the IREC as outlined in the IREC SOP's.

Yours Sincerely,

Prof J K Adam
Chairperson: IREC

APPENDIX B: LETTER OF INFORMATION



Title of the Research Study: Omni-channel shopper behaviour in the emerging South African Fourth Industrial Revolution environment.

Principal Investigator/s/researcher: Ms Tessa Reddy has a master's in management sciences, specialising in marketing.

Co-Investigator/s/supervisor/s: Dr Mandusha Maharaj, DComm

Brief Introduction and Purpose of the Study: Retailers have adapted to the change in buyers' shopping behaviour by shifting from single-channel to multi-channel and introducing Omni-channel, which was implemented to provide a seamless shopping experience. The purpose of the study is to critically analyse the nature of Omni-channel retail buyer behaviour in the emerging South African Fourth Industrial Revolution environment. A quantitative, cross-sectional study will be adopted and a survey will be administered to a sample of four hundred respondents.

Greetings: Hello, I trust that you are well.

Introduce yourself to the participant: I am a Durban University of Technology student. I am currently registered for the Doctor of Philosophy degree specialising in Marketing.

Invitation to the potential participant: I invite you to participate in the Omni-channel shopper behaviour research project in the emerging South African Fourth Industrial Revolution environment.

What is Research? Research is the systematic review and study of materials and sources to establish facts and draw new conclusions.

A survey will be conducted to collect data from selected individuals. You are welcome to ask me any questions or clarify any matter about the study. In addition, you are also welcome to discuss

the study with family and friends and are not obligated to commit to it at this stage. For this purpose, a copy of the Letter of Information is provided to you as a potential respondent.

Outline of the Procedures: This study aims to analyse the Omni-channel retail shopper behaviour in the emerging South African Fourth Industrial Revolution environment. The objectives of this study are to describe the Omni-channel shopper behaviour in the emerging Fourth Industrial Revolution in South Africa, to determine the 4IR emerging trends in Omni-channel retailing, to analyse shopper behaviour on social media platforms and to propose an Omni-channel shopper behaviour model for South Africans in the emerging Fourth Industrial Revolution. You are expected to complete an electronic questionnaire. You are expected to click the link, which will take you to the online forms. Once done, you can complete the questionnaire by clicking the complete icon. The expected duration of your commitment is approximately half an hour to complete the questionnaire.

Risks or Discomforts to the Participant: By participating in this research study, you will endure no physical, emotional, or mental harm.

Explain to the participant why he/she may be withdrawn from the Study: You reserve the **right to participate** as participation is voluntary. You, at any given time, may withdraw from the study. There will be no consequences if you withdraw from the study.

Benefits: Not applicable.

Remuneration: Not applicable.

Costs of the Study: None.

Confidentiality: You will be assured that no individual questionnaires or responses will be made public.

Results: Upon graduation, the study results will be published in the Durban University of Technology institutional repository. This platform can be accessed by the public online.

Research-related Injury: Not applicable.

Storage of all electronic and hard copies, including tape recordings. Raw Data will be captured using statistical software and password protected. The data will be stored on a USB and

kept in a lockup cupboard for five years. Only the researcher and supervisors will have access to the data. Hard copies of data will be shredded and electronic copies will be stored on an external hard drive for five years and will thereafter be deleted.

Persons to contact in the Event of Any Problems or Queries: Please contact the researcher, Ms Tessa Reddy, on 072 673 8951, alternatively 031 373 6453 or Tešsar@dut.ac.za, the supervisor, Dr Mandusha Maharaj, on 031 373 5387 or maharama@dut.ac.za or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director of Research and Postgraduate Support, Dr L Linganiso, at 031 373 2577 or researchdirector@dut.ac.za.

APPENDIX C: LETTER OF INFORMED CONSENT



Full Title of the Study: Omni-channel shopper behaviour in the emerging South African fourth industrial revolution environment.

Names of Researcher/s: Ms Tessa Reddy.

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Ms Tessa Reddy, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: _____.
- I have also received, read and understood the above-written information (Participant Letter of Information) regarding the study.
- I am aware that the study results, including personal details regarding my sex, age, date of birth, initials and diagnosis, will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____	_____	_____	_____	_____
Full Name of Participant	Date	Time	Signature	/ Right
Thumbprint				

I, Ms Tessa Reddy, herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

<u>Tessa Reddy</u>	<u>09-12-2020</u>	_____
Full Name of Researcher	Date	Signature
_____	_____	_____
Full Name of Witness (If applicable)	Date	Signature
_____	_____	_____
Full Name of Legal Guardian (If applicable)	Date	Signature

APPENDIX D: CORE STUDY CONSTRUCTS AND THEORETICAL FOUNDATIONS

The constructs examined in this study, **artificial intelligence**, **social media influence**, **perceived risks**, and **stages of shopper behaviour** (pre-purchase, purchase, and post-purchase), were identified for their relevance to omnichannel shopping in the 4IR context. Each construct is underpinned by the study's theoretical framework as follows:

Construct	Linked Theory	Operational Definition	Justification
Artificial Intelligence (AI)	Situated Cognition Theory	Intelligent technologies (e.g., ML, NLP, predictive analytics) in retail that personalise and streamline shopper journeys across channels. Rather than the full spectrum of AI tools available globally. Measurement items were adapted from validated scales in prior omnichannel and retail technology research (e.g., Grewal <i>et al.</i> , 2020; Nguyen <i>et al.</i> , 2022; Moodley and Sookhdeo, 2025) and contextualised through a preliminary review of AI adoption trends in South African retail. The variable focused on three functional dimensions: 1. Personalised recommendations (machine learning–driven product suggestions). 2. Augmented reality (AR) visualisation tools for product trials. 3. Chatbots and virtual assistants for customer support. 4. Predictive analytics for personalised offers and stock alerts.	AI tools such as personalised recommendations and chatbots form part of the contextual environment in which shopping decisions occur, shaping cognition and behaviour during all stages of the shopper journey.
Social Media Influence	Theory of Reasoned Action (TRA) / Self-Determination Theory (SDT)	Consumer interactions with brand content, influencers, or peer-generated reviews on social platforms influence attitudes and purchase behaviours.	Social media influencers and peer recommendations act as subjective norms (TRA) that shape purchase intentions. They also fulfil SDT's relatedness need by fostering social connection and trust in omnichannel shopping.
Perceived Risks	Theory of Planned Behaviour (TPB)	Consumer perceptions of negative outcomes (financial, privacy, performance) from omnichannel transactions.	Perceived risks (financial, privacy, product quality) influence perceived behavioural control in the TPB framework, affecting whether consumers feel capable and confident to complete transactions across channels.

Stages of Shopper Behaviour (Pre-purchase, Purchase, Post-purchase)	Situated Cognition Theory / SDT	Sequential phases: pre-purchase (search/evaluate), purchase (decision/transaction), post-purchase (evaluation/feedback).	The tripartite shopper journey reflects context-dependent decision processes (Situated Cognition), while SDT explains motivational differences at each stage—autonomy in pre-purchase exploration, competence during purchase decision-making, and relatedness in post-purchase engagement.

By explicitly linking these constructs to established theories, the study ensures conceptual alignment between the theoretical grounding and the empirical model, enabling a richer interpretation of findings in the context of South Africa's 4IR-driven retail sector.

APPENDIX E: DERIVATION TABLE

AI – In-Store

Questionnaire Item	Adapted / Motivated By
I prefer self-service checkouts in-store.	Misischia, C. V. 2022. Chatbots and automation improving service processes. <i>Journal of Retailing and Consumer Services</i> .
I make use of smart assistants (Siri/Alexa) when shopping in-store.	Mari, A., Mangiò, F., Castellano, S. and Zerbini, F. 2024. Empathic voice assistants in retail: Shaping shopping responses. <i>Journal of Retailing and Consumer Services</i> , 73: 103338.
I enjoy engaging with chatbots in-store.	Misischia, C. V. 2022. Chatbots and automation improving service processes. <i>Journal of Retailing and Consumer Services</i> .
I believe smart shelf tags would provide me with in-store assistance.	AP News. 2025. <i>Digital shelf labels adoption and consumer perceptions</i> . Associated Press.
Intelligent display adverts would influence my purchase decisions when shopping in-store.	Khan, S., Tomar, S., Fatima, M. and Khan, M. Z. 2022. Impact of artificial intelligent and industry 4.0 based products on consumer behaviour characteristics: A meta-analysis-based review, <i>Sustainable Operations and Computers</i> , 3: 218-225
Targeted deals sent to my smartphone while shopping encourage me to make purchases.	Grewal, D., Roggeveen, A.L. and Nordfält, J. 2020. The future of retailing. <i>Journal of Retailing</i> , 96(1): 86–95.

AI – Online

Questionnaire Item	Adapted / Motivated By
I prefer chatbots to provide me with online customer service.	Misischia, C.V. 2022. Chatbots and automation in service processes: Enhancing efficiency and customer satisfaction. <i>Journal of Retailing and Consumer Services</i> , 66: 102926.
I opt to shop for products by uploading images online.	Subramanian, J. 2023. <i>Visual search and image recognition in Ecommerce</i> . Available: https://www.linkedin.com/pulse/visual-search-image-recognition-ecommerce-jheeva-subramanian/ (Accessed 04 April 2024).
I choose to search for products using voice search online.	Inman, J. J., and Nikolova, H. D. 2023. Voice AI adoption increases spend on retail platforms: Field data. <i>Marketing Science</i> .
I make use of smart assistants (Siri/Alexa) when shopping online.	Mari, A., Mangiò, F., Castellano, S. and Zerbini, F. 2024. Empathic voice assistants in retail: Shaping shopping responses. <i>Journal of Retailing and Consumer Services</i> , 73: 103338.
Personalised product recommendations on websites influence my purchase decision.	Basu, S. 2021. Personalised product recommendations and firm performance. <i>Electronic Commerce Research and Applications</i> . 48: 101074. Available: https://doi.org/10.1016/j.elerap.2021.101074 (ACAccessed

High-Involvement Product – Smartphones

Pre-Purchase

Questionnaire Item	Adapted / Motivated By
I view smartphones online and shop online.	Flavián, C., Gurrea, R., and Orús, C. 2020. Combining channels in the purchase process: The impact on the consumer. <i>Journal of Retailing and Consumer Services</i> .
I look around in-store for smartphones and shop in-store.	Verhoef, P. C., Kannan, P. K., and Inman, J. J. 2015. From multi-channel retailing to omnichannel retailing: Introduction to the special issue. <i>Journal of Retailing</i> .
I scroll through smartphones online and shop in-store.	Singh, P. 2023. <i>Showroom and webrooming an overview</i> . Available: https://www.linkedin.com/pulse/showrooming-webrooming-an-overview-pinky-singh/ (Accessed 19 March 2024).
I browse smartphones in-store and shop online.	Flavián, C., Gurrea, R., and Orús, C. 2020. Showrooming behaviour: Antecedents and consequences. <i>Journal of Business Research</i> .
I prefer webrooming.	Piotrowicz, W., and Cuthbertson, R. 2019. Exploring webrooming behaviour in omnichannel retailing. <i>International Journal of Retail and Distribution Management</i> .
I choose to showroom.	Singh, P. 2023. <i>Showroom and webrooming an overview</i> . Available: https://www.linkedin.com/pulse/showrooming-webrooming-an-overview-pinky-singh/ (Accessed 19 March 2024).

Evaluation of Information

Questionnaire Item	Adapted / Motivated By
Price, quality, brand, discounts, ease of transaction, method of payment, customer reviews, past shopping experience, trustworthiness, friends and family's opinion, security, payment options, delivery/collection options.	Lemon, K. N., and Verhoef, P. C. 2016. Understanding customer experience throughout the customer journey. <i>Journal of Marketing</i> . Cheung, C. M., and Lee, M. K. 2012. What drives consumers to spread electronic word of mouth in online consumer-opinion platforms? <i>Decision Support Systems</i> .

Product Risk

Questionnaire Item	Adapted / Motivated By
It is easy to judge the quality of the smartphone online.	Carvalho, G., Machado, M. C. and Correa, V. 2023. Omnichannel and consumer and retailer perceived risks and benefits: a review. <i>International Journal of Retail and Distribution Management</i> , 52(1). Available: http://dx.doi.org/10.1108/IJRDM-03-2023-0180 (Accessed 10 August 2025).
I can examine the smartphone online.	Ortlinghaus, A., Zielke, S. and Dobbelsstein, T. 2019. The Impact of Risk Perceptions on the Attitude toward Multi-Channel Technologies. <i>The International Review of Retail, Distribution and Consumer Research</i> , 29 (3): 262-284.

Counterfeit smartphones may be sold to shoppers.	Carvalho, G., Machado, M. C. and Correa, V. 2023. Omnichannel and consumer and retailer perceived risks and benefits: a review. <i>International Journal of Retail and Distribution Management</i> , 52(1). Available: http://dx.doi.org/10.1108/IJRDM-03-2023-0180 (Accessed 10 August 2025).
The smartphone is like it appears visually on the screen.	Carvalho, G., Machado, M. C. and Correa, V. 2023. Omnichannel and consumer and retailer perceived risks and benefits: a review. <i>International Journal of Retail and Distribution Management</i> , 52(1). Available: http://dx.doi.org/10.1108/IJRDM-03-2023-0180 (Accessed 10 August 2025).

Purchase

Questionnaire Item	Adapted / Motivated By
Collection/delivery options (BOPIS, home delivery, curbside pickup).	Gallino, S. and Moreno, A. 2014. Integration of online and offline channels in retail: The impact of sharing reliable inventory availability information. <i>Management Science</i> , 60(6): 1434–1451.
Payment methods (cash, card, mobile, COD, PayPal, etc.).	Grewal, D., Roggeveen, A.L. and Nordfält, J. 2020. The future of retailing. <i>Journal of Retailing</i> , 96(1): 86–95.

Post-Purchase

Questionnaire Item	Adapted / Motivated By
Satisfaction: post photos, advise friends, recommend retailer, post reviews, repeat purchases.	Oliver, R. L. 1980. A cognitive model of the antecedents and consequences of satisfaction decisions. <i>Journal of Marketing Research</i> . Cheung, C. M., and Lee, M. K. (2012). <i>Decision Support Systems</i> .
Dissatisfaction: contact retailer, return in-store, arrange pickup.	Lemon, K. N. and Verhoef, P. C. 2016. Understanding customer experience throughout the customer journey. <i>Journal of Marketing</i> , 80(6): 69–96.

Low-Involvement Product – Groceries

(mirrored sets from smartphones but adapted to the grocery context)

Social Media

Social Media Use

Questionnaire Item	Adapted / Motivated By
I use social media during my shopping journey.	Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R. and Singh, R. 2016. Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. <i>Journal of Business Research</i> , 69(12): 5833–5841.

I search for groceries on social media before making a purchase decision.	Abdullah, M. H. S. and Faisal, A. 2022. The Role Of Social Media Marketing Activities In Increasing Brand Loyalty. <i>Jurnal Ekonomi</i> . 27(3):478-499.
I read grocery reviews on social media before making a purchase.	Cheung, C. M., and Lee, M. K. 2012. What drives consumers to spread electronic word of mouth in online platforms? <i>Decision Support Systems</i> .
I make price comparisons on social media before buying groceries.	Mangold, W. G., and Faulds, D. J. 2009. Social media: The new hybrid element of the promotion mix. <i>Business Horizons</i> .
I compare brands on social media before purchasing groceries.	Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R. and Singh, R. 2016. Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. <i>Journal of Business Research</i> , 69(12): 5833–5841.

Social Media Engagement

Questionnaire Item	Adapted / Motivated By
I react to the retailer's post (like/love/etc.).	Aydin, G., Uray, N., & Silahtaroglu, G. (2021). How to Engage Consumers through Effective Social Media Use—Guidelines for Consumer Goods Companies from an Emerging Market. <i>Journal of Theoretical and Applied Electronic Commerce Research</i> , 16(4), 768-790. https://doi.org/10.3390/jtaer16040044
I post a comment on retailer's posts.	Abdullah, M. H. S. and Faisal, A. 2022. The Role Of Social Media Marketing Activities In Increasing Brand Loyalty. <i>Jurnal Ekonomi</i> . 27(3):478-499.
I share retailer's posts.	Godey, B., Manthiou, A., Pederzoli, D., Rokka, J., Aiello, G., Donvito, R. and Singh, R. 2016. Social media marketing efforts of luxury brands: Influence on brand equity and consumer behavior. <i>Journal of Business Research</i> , 69(12): 5833–5841.
I enter or register on retailer's posts (for competitions).	Kaplan, A. M., and Haenlein, M. 2010. Users of the world, unite! The challenges and opportunities of social media. <i>Business Horizons</i> .
I follow retailers on social media.	Mangold, W. G. and Faulds, D. J. 2009. Social media: The new hybrid element of the promotion mix. <i>Business Horizons</i> , 52(4): 357-365.
I follow social media influencers.	Ki, C.W., Cuevas, L.M., Chong, S.M. and Lim, H. 2020. Influencer marketing: Social media influencers as human brands, attaching to followers. <i>Journal of Retailing and Consumer Services</i> , 55: 102127.

Social Media Platforms – Usage Purposes

Questionnaire Item	Adapted / Motivated By

YouTube, Facebook, Twitter, Snapchat, Pinterest, Instagram, TikTok – purposes (browse, search info, compare, read reviews, purchase, post review, not use).	Phua, J., Jin, S. V. and Kim, J. J. 2020. Uses and gratifications of social networking sites for bridging and bonding social capital: A comparison of Facebook, Twitter, Instagram, and Snapchat. <i>Computers in Human Behaviour</i> , 72: 115–122.

Risk Section

Financial Risk

Questionnaire Item	Adapted / Motivated By
Shopping online can save me money.	Forsythe, S., Liu, C., Shannon, D. and Gardner, L.C. 2006. Development of a scale to measure the perceived benefits and risks of online shopping. <i>Journal of Interactive Marketing</i> , 20(2): 55–75.
I believe that my credit card details are secure while shopping online.	Tandon, A., Aakash, A. and Gupta, A. 2023. Consumer perceived risk in omnichannel retail: A multi-dimensional analysis. <i>Sustainability</i> , 15(2): 1264.
Price calculations are always correct when making online purchases.	Forsythe, S., Liu, C., Shannon, D. and Gardner, L.C. 2006. Development of a scale to measure the perceived benefits and risks of online shopping. <i>Journal of Interactive Marketing</i> , 20(2): 55–75.
My financial information (pins and passwords) is secure in online stores.	Carvalho, G., Machado, M. C. and Correa, V. 2023. Omnichannel and consumer and retailer perceived risks and benefits: a review. <i>International Journal of Retail and Distribution Management</i> , 52(1). Available: http://dx.doi.org/10.1108/IJRDM-03-2023-0180 (Accessed 10 August 2025).
I can get a refund on my purchase online.	Forsythe, S., Liu, C., Shannon, D. and Gardner, L.C. 2006. Development of a scale to measure the perceived benefits and risks of online shopping. <i>Journal of Interactive Marketing</i> , 20(2): 55–75.

Time Loss Risk

Questionnaire Item	Adapted / Motivated By
Shopping online saves me time.	Childers, T.L., Carr, C.L., Peck, J. and Carson, S. 2001. Hedonic and utilitarian motivations for online retail shopping behaviour. <i>Journal of Retailing</i> , 77(4): 511–535.
Online stores process purchase orders quickly.	Forsythe, S., Liu, C., Shannon, D. and Gardner, L.C. 2006. Development of a scale to measure the perceived benefits and risks of online shopping. <i>Journal of Interactive Marketing</i> , 20(2): 55–75.
Searching for information online saves me time.	Childers, T.L., Carr, C.L., Peck, J. and Carson, S. 2001. Hedonic and utilitarian motivations for online retail shopping behaviour. <i>Journal of Retailing</i> , 77(4): 511–535.

Returns, exchanges and refunds are done timeously.	Lemon, K. N. and Verhoef, P. C. 2016. Understanding customer experience throughout the customer journey. <i>Journal of Marketing</i> , 80(6): 69–96.

Transaction Risk

Questionnaire Item	Adapted / Motivated By
Inserting banking details in an online store is safe.	Carvalho, G., Machado, M. C. and Correa, V. 2023. Omnichannel and consumer and retailer perceived risks and benefits: a review. <i>International Journal of Retail and Distribution Management</i> , 52(1). Available: http://dx.doi.org/10.1108/IJRDM-03-2023-0180 (Accessed 10 August 2025).
Banking details on a mobile shopping app are secure.	Ortlinghaus, A., Zielke, S. and Dobbelsstein, T. 2019. The Impact of Risk Perceptions on the Attitude toward Multi-Channel Technologies. <i>The International Review of Retail, Distribution and Consumer Research</i> 29 (3): 262-284.
Transactions and records are always correct.	Forsythe, S., Liu, C., Shannon, D. and Gardner, L.C. 2006. Development of a scale to measure the perceived benefits and risks of online shopping. <i>Journal of Interactive Marketing</i> , 20(2): 55–75.
Providing credentials is always secure.	Carvalho, G., Machado, M. C. and Correa, V. 2023. Omnichannel and consumer and retailer perceived risks and benefits: a review. <i>International Journal of Retail and Distribution Management</i> , 52(1). Available: http://dx.doi.org/10.1108/IJRDM-03-2023-0180 (Accessed 10 August 2025).
My digital devices have an antivirus installed.	Anderson, C.L. and Agarwal, R. 2010. Practising safe computing: A multimedia empirical examination of home computer user security behavioural intentions. <i>MIS Quarterly</i> , 34(3): 613–643.

Privacy Risk

Questionnaire Item	Adapted / Motivated By
I provide retailers with my personal information.	Malhotra, N. K., Kim, S. S. and Agarwal, J. 2004. Internet users' information privacy concerns (IUIPC): The construct, the scale and a causal model. <i>Information Systems Research</i> , 15(4): 336–355.
Retailers may use my personal information to serve my needs better.	Malhotra, N. K., Kim, S. S. and Agarwal, J. 2004. Internet users' information privacy concerns (IUIPC): The construct, the scale and a causal model. <i>Information Systems Research</i> , 15(4): 336–355.
Personal information of shoppers may improve the shopping experience.	
Retailers should use shoppers' personal information to provide rewards.	Malhotra, N. K., Kim, S. S. and Agarwal, J. 2004. Internet users' information privacy concerns (IUIPC): The construct, the scale and a causal model. <i>Information Systems Research</i> , 15(4): 336–355.

Sharing my personal information with retailers is secure.	Carvalho, G., Machado, M. C. and Correa, V. 2023. Omnichannel and consumer and retailer perceived risks and benefits: a review. International Journal of Retail and Distribution Management, 52(1). Available: http://dx.doi.org/10.1108/IJRDM-03-2023-0180 (Accessed 10 August 2025).

Logistics Risk

Questionnaire Item	Adapted / Motivated By
Products are always delivered to the correct address.	Gallino, S. and Moreno, A. 2014. Integration of online and offline channels in retail: The impact of sharing reliable inventory availability information. Management Science, 60(6): 1434–1451.
The specific orders/products are always delivered.	
Products are always received in good condition.	
Delivery is always on time.	
The product is always delivered as specified.	

APPENDIX F: ETHICS CERTIFICATION



Zertifikat
Certificat

Promouvoir les plus hauts standards éthiques dans la protection des participants à la recherche biomédicale
Promoting the highest ethical standards in the protection of biomedical research participants



Certificado
Certificate

Certificat de formation - Training Certificate
Ce document atteste que - this document certifies that

Tessa Reddy

a complété avec succès - has successfully completed

Introduction to Research Ethics

du programme de formation TRREE en évaluation éthique de la recherche
of the TRREE training programme in research *ethics evaluation*

Release Date: 2021/03/09
CRO : FwZ9Y7u02s

FMH Continuing Education Program (5 Credits)
Programme de Formation Continue (5 Crédits)

FPH Fédération Française de Pédiatrie
Fédération Française de Pédiatrie
Continuing Education Program
Programme de formation continue

Professeur Dominique Sprumont
Coordinateur TRREE Coordinator

Ce programme est soutenu par - This program is supported by :
European and Developing Countries Clinical Trials Partnership (EDCTP) (www.edctp.org) - Swiss National Science Foundation (www.snf.ch) - Canadian Institutes of Health Research (<http://www.cihr-irsc.gc.ca/2891.html>) -
Sino- Academy of Medical Science (SAMS/AMS/AMW) (www.sams.ac) - Commission for Research Partnership with Developing Countries (www.kfpe.ch)

[REV : 20170310]

APPENDIX G: RESEARCH INSTRUMENT (QUESTIONNAIRE)

Research Topic

Omni-channel shopper behaviour in the emerging South African Fourth Industrial Revolution environment.

Research aim

The study aims to critically analyse the nature of Omnichannel shopper behaviour in the emerging South African Fourth Industrial Revolution environment.

Research objectives

1. To describe the omnichannel shopper behaviour in the emerging Fourth Industrial Revolution in South Africa.
2. To determine the 4IR emerging trends in omnichannel retailing.
3. To analyse shopper behaviour on social media platforms.
4. To analyse omnichannel shopper behaviour on high- and low-involvement products.
5. To propose an omnichannel shopper behaviour model for South Africans in the emerging Fourth Industrial Revolution.

Research questions

1. What does the Omni-channel retail environment in South Africa entail?
2. What are the emerging 4IR trends in Omni-channel retailing in South Africa?
3. What are the social media shopping behaviours in the Omni-channel retail environment?
4. What are the existing Omni-channel shopper behaviour models?

1. How often did you shop online in the last year?

Daily	1
Weekly	2
Monthly	3
Never	4



Filter Question

To determine whether the respondent is eligible to complete the questionnaire.

If the respondent selected **“NEVER”** they should not proceed with the questionnaire.

2. Devices used for online shopping (May select more than one option)

Desktop	1
Laptop	2
Tablet/iPad	3
Smartphone	4

3 PERSONAL DEMOGRAPHIC INFORMATION

3.1 Age category

18 – 24	1
25 – 40	2
41 – 56	3
57 and above	4

3.2 Gender

Male	1
Female	2
Diverse/Other/Not specified	3

3.3 Home language

Afrikaans	1
English	2
Xhosa	3
Zulu	4
Venda	5
Southern Sotho	6
Northern Sotho	7
Tswana	8
Tsonga	9
Swati	10
Ndebele	11
Other	12

3.4 Highest educational qualification

Primary	1
Secondary	2
Tertiary	3

3.5 Type of occupation

Professional	1
Technical	2
Administrative	3
Managerial	4
Self-employed	5
Retired	6

4 HOUSEHOLD DEMOGRAPHIC INFORMATION

9.6 Household Net income per month (South African Rand)

Less than R799	1
R 800 - R 1 399	2
R 1 400 - R 2 499	3
R 2 500 - R 4 999	4
R 5 000 - R 7 999	5
R 8 000 - R10 999	6
R11 000 - R19 999	7
R20 000 and above	8

9.7 Geographical residential region

Eastern Cape	1
Free State	2
Gauteng	3
KwaZulu-Natal	4
Limpopo	5
Mpumalanga	6
Northern Cape	7
Northwest	8
Western Cape	9

9.8 Residential Location

Central City	1
Urban/Suburban	2
Town	3
Rural	4

5 FOURTH INDUSTRIAL REVOLUTION EMERGING TRENDS IN OMNICHANNEL SHOPPING

Please rate the following statements using the rating scale in the table below and mark your response with an **X**.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

5.1 Artificial Intelligence In-Store

5.1.1	I prefer self-service checkouts in-store	1	2	3	4	5	6	7
5.1.2	I make use of smart assistants (Siri/Alexa) when shopping in-store	1	2	3	4	5	6	7
5.1.3	I enjoy engaging with chatbots in-store	1	2	3	4	5	6	7
5.1.4	I believe smart shelf tags would provide me with in-store assistance	1	2	3	4	5	6	7
5.1.5	Intelligent display adverts would influence my purchase decisions when shopping in-store	1	2	3	4	5	6	7
5.1.6	Targeted deals sent to my smartphone while shopping encourages me to make purchases	1	2	3	4	5	6	7

5.2 Artificial Intelligence Online

5.2.1	I prefer chatbots to provide me with online customer service	1	2	3	4	5	6	7
5.2.2	I opt to shop for products by uploading images online	1	2	3	4	5	6	7
5.2.3	I choose to search for products using voice search online	1	2	3	4	5	6	7
5.2.4	I make use of smart assistants (Siri/Alexa) when shopping online	1	2	3	4	5	6	7
5.2.5	Personalised product recommendations on websites influence my purchase decision	1	2	3	4	5	6	7

Please rate the following statements using the rating scale in the table below and mark your response with an **X**.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

HIGH-INVOLVEMENT PRODUCT

High-involvement products include products purchased whereby the consumer takes time and thought before purchasing.

Example: A smartphone

Please indicate your preferences when you purchase a smartphone by answering the following questions and statements:

6 SHOPPER BEHAVIOUR OMNICHANNEL

6.1 PREPURCHASE

6.1.1 Awareness (Browsing and Shopping) - smartphone.

6.1.1.1	I view smartphones online and shop online	1	2	3	4	5	6	7
6.1.1.2	I look around in-store for smartphones and shop in-store	1	2	3	4	5	6	7
6.1.1.3	I scroll through smartphones online and shop in-store	1	2	3	4	5	6	7
6.1.1.4	I browse smartphones in-store and shop online	1	2	3	4	5	6	7

6.1.2 Search for information - smartphone.

6.1.2.1	I prefer webrooming (searching for information online and then purchasing the smartphone in-store)	1	2	3	4	5	6	7
6.1.2.2	I choose to showroom (gathering information and examining smartphones in-store and then purchasing the smartphone online)	1	2	3	4	5	6	7

Please rate the following statements using the rating scale in the table below and mark your response with an **X**.

1	2	3	4	5	6	7
Not at all important	Low importance	Slightly important	Neither important nor unimportant	Moderately important	Very important	Extremely important

6.1.3 Evaluation of information - smartphone

6.1.3.1 Indicate the extent to which the following product attributes are important when purchasing a smartphone.

6.1.3.1.1	Price of the smartphone	1	2	3	4	5	6	7
6.1.3.1.2	Quality of the smartphone	1	2	3	4	5	6	7
6.1.3.1.3	Brand	1	2	3	4	5	6	7
6.1.3.1.4	Discounts and deals	1	2	3	4	5	6	7
6.1.3.1.5	Ease of transaction	1	2	3	4	5	6	7
6.1.3.1.6	Method of payment	1	2	3	4	5	6	7
6.1.3.1.7	Customer reviews	1	2	3	4	5	6	7
6.1.3.1.8	Past shopping experience	1	2	3	4	5	6	7
6.1.3.1.9	Trustworthiness	1	2	3	4	5	6	7
6.1.3.1.10	Friends and family's opinion	1	2	3	4	5	6	7
6.1.3.1.11	Security	1	2	3	4	5	6	7
6.1.3.1.12	Payment options	1	2	3	4	5	6	7
6.1.3.1.13	Delivery/Collection options	1	2	3	4	5	6	7

6.1.4. Product risk

6.1.4.1	It is easy to judge the quality of the smartphone online	1	2	3	4	5	6	7
6.1.4.2	I can examine the smartphone online	1	2	3	4	5	6	7
6.1.4.3	Counterfeit smartphones may be sold to shoppers	1	2	3	4	5	6	7
6.1.4.4	The smartphone is like it appears visually on the screen	1	2	3	4	5	6	7

Please rate the following statements using the rating scale in the table below and mark your response with an **X**.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

6.2 PURCHASE

6.2.1 Collection/Delivery of the Smartphone

6.2.1.1	I choose to purchase smartphones online and collect them in-store	1	2	3	4	5	6	7
6.2.1.2	I opt to purchase smartphones online and receive them via delivery	1	2	3	4	5	6	7
6.2.1.3	I tend to purchase smartphones in-store and collect in-store	1	2	3	4	5	6	7
6.2.1.4	I prefer to purchase smartphones in-store and receive delivery of the smartphone	1	2	3	4	5	6	7
6.2.1.5	I chose to make online purchases and collect curbside	1	2	3	4	5	6	7

6.2.2 Payment methods when purchasing a smartphone.

6.2.2.1	I choose to pay in cash while in-store	1	2	3	4	5	6	7
6.2.2.2	I tend to pay using my credit/debit card while in-store	1	2	3	4	5	6	7
6.2.2.3	I opt to pay using my mobile phone while in-store	1	2	3	4	5	6	7
6.2.2.4	I select cash on delivery when I purchase online	1	2	3	4	5	6	7
6.2.2.5	I use apps to pay for online purchases (PayPal, Samsung Pay, etc.)	1	2	3	4	5	6	7
6.2.2.6	I generally pay using my credit/debit card when shopping online	1	2	3	4	5	6	7

6.3 POST-PURCHASE

6.3.1 Satisfaction

Imagine you just bought a smartphone and you are **satisfied** with your purchase; to what extent would the following statements apply to you:

6.3.1.1	I take photos of the smartphone I purchased and post them online	1	2	3	4	5	6	7
6.3.1.2	I advise friends, family and colleagues to purchase the same smartphone I bought	1	2	3	4	5	6	7
6.3.1.3	I recommend that friends, family and colleagues to purchase from my preferred retailer	1	2	3	4	5	6	7
6.3.1.4	I post reviews of the smartphone on social media networking sites	1	2	3	4	5	6	7
6.3.1.5	I make repeat purchases of the smartphone	1	2	3	4	5	6	7

6.3.2 Dissatisfaction

Imagine you just bought a smartphone and you are **dissatisfied** with your purchase; to what extent would the following statements apply to you:

6.3.2.1	I contact the retailer telephonically before returning the smartphone	1	2	3	4	5	6	7
6.3.2.2	I communicate with the retailer via email before making a return	1	2	3	4	5	6	7
6.3.2.3	I visited the physical store to return the smartphone purchased in-store	1	2	3	4	5	6	7
6.3.2.4	I go to the physical store to return the smartphone purchased online	1	2	3	4	5	6	7
6.3.2.5	I contact the retailer to pick up the smartphone from my home/office for return if I purchased the smartphone online	1	2	3	4	5	6	7

LOW-INVOLVEMENT PRODUCT

Low-involvement products are bought frequently with minimal thought and effort.

Example: Groceries (Food items)

Please indicate your preferences when you purchase groceries by answering the following questions and statements:

7 SHOPPER BEHAVIOUR OMNICHANNEL

Please rate the following statements using the rating scale in the table below and mark your response with an **X**.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

7.1 PREPURCHASE

7.1.1 Browsing and Shopping (Awareness) – Groceries (Food items)

7.1.1.1	I view groceries online and shop online	1	2	3	4	5	6	7
7.1.1.2	I look for groceries in-store and shop in-store	1	2	3	4	5	6	7
7.1.1.3	I scroll through groceries online and shop in-store	1	2	3	4	5	6	7
7.1.1.4	I browse groceries in-store and shop online	1	2	3	4	5	6	7

7.1.2 Search for information – Groceries (Food items)

7.1.2.1	I prefer webrooming (searching for information online and then purchasing the groceries offline)	1	2	3	4	5	6	7
7.1.2.2	I choose to showroom (gathering information and examining groceries in-store and then purchasing the groceries online)	1	2	3	4	5	6	7

Please rate the following statements using the rating scale in the table below and mark your response with an **X**.

1	2	3	4	5	6	7
Not at all important	Low importance	Slightly important	Neither important nor unimportant	Moderately important	Very important	Extremely important

7.1.3 Evaluation of information

7.1.3.1 Indicate the extent to which the following product attributes are important to you when purchasing groceries (Food items).

7.1.3.1.1	Price of the groceries	1	2	3	4	5	6	7
7.1.3.1.2	Quality of the groceries	1	2	3	4	5	6	7
7.1.3.1.3	Brand	1	2	3	4	5	6	7
7.1.3.1.4	Discounts and deals	1	2	3	4	5	6	7
7.1.3.1.5	Ease of transaction	1	2	3	4	5	6	7
7.1.3.1.6	Method of payment	1	2	3	4	5	6	7
7.1.3.1.7	Customer reviews	1	2	3	4	5	6	7
7.1.3.1.8	Past shopping experience	1	2	3	4	5	6	7
7.1.3.1.9	Trustworthiness	1	2	3	4	5	6	7
7.1.3.1.10	Friends and family's opinion	1	2	3	4	5	6	7
7.1.3.1.11	Security	1	2	3	4	5	6	7
7.1.3.1.12	Payment options	1	2	3	4	5	6	7
7.1.3.1.13	Delivery/Collection options	1	2	3	4	5	6	7

7.1.4 Product risk

7.1.4.1	It is easy to judge the quality of groceries online	1	2	3	4	5	6	7
7.1.4.2	I can examine groceries online	1	2	3	4	5	6	7
7.1.4.3	Counterfeit groceries may be sold to shoppers	1	2	3	4	5	6	7
7.1.4.4	The groceries are like they appeared visually on the screen	1	2	3	4	5	6	7

Please rate the following statements using the rating scale in the table below and mark your response with an **X**.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

7.2 PURCHASE

7.2.1 Collection/Delivery of the Groceries (Food items)

7.2.1.1	I choose to purchase groceries online and collect them in-store	1	2	3	4	5	6	7
7.2.1.2	I opt to purchase groceries online and receive them via delivery	1	2	3	4	5	6	7
7.2.1.3	I tend to purchase groceries in-store and collect them in-store	1	2	3	4	5	6	7
7.2.1.4	I prefer to purchase groceries in-store and receive delivery of the groceries	1	2	3	4	5	6	7
7.2.1.5	I chose to make online purchases and collect curb side	1	2	3	4	5	6	7

7.2.2 Payment methods when purchasing groceries.

7.2.2.1	I choose to pay in cash while in-store	1	2	3	4	5	6	7
7.2.2.2	I tend to pay using my credit/debit card while in-store	1	2	3	4	5	6	7
7.2.2.3	I opt to pay using my mobile phone while in-store	1	2	3	4	5	6	7
7.2.2.4	I select cash on delivery when I purchase goods online	1	2	3	4	5	6	7
7.2.2.5	I use apps to pay for online purchases (PayPal, Samsung Pay, etc.)	1	2	3	4	5	6	7
7.2.2.6	I generally pay using my credit/debit card when shopping online	1	2	3	4	5	6	7

7.3 POST-PURCHASE BEHAVIOUR

7.3.1 Satisfaction

Imagine you just bought groceries and you are **satisfied** with your purchase; to what extent would the following statements apply to you:

7.3.1.1	I take photos of the groceries I purchased and post them online	1	2	3	4	5	6	7
7.3.1.2	I advise friends, family and colleagues to purchase the groceries I bought	1	2	3	4	5	6	7
7.3.1.3	I recommend that friends, family and colleagues to purchase from my preferred retailer	1	2	3	4	5	6	7
7.3.1.4	I post reviews of the groceries on social media networking sites	1	2	3	4	5	6	7
7.3.1.5	I make repeat purchases of the groceries	1	2	3	4	5	6	7

7.3.2 Dissatisfaction

Imagine you just bought groceries and you are **dissatisfied** with your purchase; to what extent would the following statements apply to you:

7.3.2.1	I contact the retailer telephonically before returning the groceries	1	2	3	4	5	6	7
7.3.2.2	I communicate with the retailer via email before making a return	1	2	3	4	5	6	7
7.3.2.3	I visit the physical store to return the groceries purchased in-store	1	2	3	4	5	6	7
7.3.2.4	I go to the physical store to return the groceries purchased online	1	2	3	4	5	6	7
7.3.2.5	I contact the retailer to pick up the groceries from my home/office for return if I purchased the groceries online	1	2	3	4	5	6	7

SOCIAL MEDIA

9.1 Social media use when purchasing groceries.

9.1.1	I use social media during my shopping journey	1	2	3	4	5	6	7
9.1.2	I search for groceries on social media before making a purchase decision	1	2	3	4	5	6	7
9.1.3	I read grocery reviews on social media before making a purchase	1	2	3	4	5	6	7
9.1.4	I make price comparisons on social media before buying groceries	1	2	3	4	5	6	7
9.1.5	I compare brands on social media before purchasing groceries	1	2	3	4	5	6	7

9.2 Social media engagement - groceries

9.2.1	I react to the retailer's post (like love, care, ha-ha, sad, angry)	1	2	3	4	5	6	7
9.2.2	I post a comment on retailer's posts	1	2	3	4	5	6	7
9.2.3	I share retailer's posts	1	2	3	4	5	6	7
9.2.4	I enter or register on retailer's posts (for competitions)	1	2	3	4	5	6	7
9.2.5	I follow retailers on social media	1	2	3	4	5	6	7
9.2.6	I follow social media influencers	1	2	3	4	5	6	7

9.3 What do you use each social media networking site for grocery shopping?

		Browse products	Search for product information	Compare prices and brands	Read product reviews	Purchasing	Post product review	Do not use social media networking sites
9.3.1	YouTube	1	2	3	4	5	6	7
9.3.2	Facebook	1	2	3	4	5	6	7
9.3.3	Twitter	1	2	3	4	5	6	7
9.3.4	Snapchat	1	2	3	4	5	6	7
9.3.5	Pinterest	1	2	3	4	5	6	7
9.3.6	Instagram	1	2	3	4	5	6	7
9.3.7	TikTok	1	2	3	4	5	6	7

Please rate the following statements using the rating scale in the table below and mark your response with an **X**.

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree

10. Risk

10.1 Financial risk

10.1.1	Shopping online can save me money	1	2	3	4	5	6	7
10.1.2	I believe that my credit card details are secure while shopping online	1	2	3	4	5	6	7
10.1.3	Price calculations are always correct when making online purchases	1	2	3	4	5	6	7
10.1.4	my financial information (pins and passwords) is secure in online stores	1	2	3	4	5	6	7
10.1.5	I can get a refund on my purchase online	1	2	3	4	5	6	7

10.2 Time loss risk

10.2.1	Shopping online saves me time	1	2	3	4	5	6	7
10.2.2	Online stores process purchase orders quickly	1	2	3	4	5	6	7
10.2.3	Searching for information online saves me time	1	2	3	4	5	6	7
10.2.4	Returns, exchanges and refunds are done timeously	1	2	3	4	5	6	7

10.3 Transaction risk

10.3.1	Inserting banking details in an online store is safe	1	2	3	4	5	6	7
10.3.2	Banking details on a mobile shopping app are secure	1	2	3	4	5	6	7
10.3.3	Transactions and records are always correct	1	2	3	4	5	6	7
10.3.4	Providing Credentials (email address and password information) are always secure	1	2	3	4	5	6	7
10.3.5	My digital devices have an antivirus installed	1	2	3	4	5	6	7

10.4 Privacy risk

10.4.1	I provide retailers with my personal information	1	2	3	4	5	6	7
10.4.2	Retailers may use my personal information to serve my needs better	1	2	3	4	5	6	7
10.4.3	Personal information of shoppers may improve the shopping experience	1	2	3	4	5	6	7
10.4.4	Retailers should use shoppers' personal information to provide rewards (discounts and coupons)	1	2	3	4	5	6	7
10.4.5	Sharing my personal information with retailers is secure	1	2	3	4	5	6	7

10.5 Logistics risk

10.5.1	Products are always delivered to the correct address	1	2	3	4	5	6	7
10.5.2	The specific orders/products are always delivered	1	2	3	4	5	6	7
10.5.3	Products are always received in good condition	1	2	3	4	5	6	7
10.5.4	Delivery is always on time	1	2	3	4	5	6	7
10.5.5	The product is always delivered as specified	1	2	3	4	5	6	7

APPENDIX H: LETTER FROM THE STATISTICIAN

Gill Hendry B.Sc. (Hons), M.Sc. (Wits), PhD (UKZN)
Mathematical and Statistical Services

Cell: 083 300 9896
Email: gillhendrystats@gmail.com

13 January 2025

Re: Statistical assistance

Please be advised that I assisted Tessa Reddy (Student number 20923610), who is currently studying for a Doctor of Philosophy: Marketing at the Durban University of Technology, with the questionnaire alignment and statistical analysis of her data.

Yours sincerely

Private Consulting Statistician

APPENDIX I: LETTER FROM THE EDITOR

Sury Bisetty Academic Editing Services

CIPC No. 2021/360666/07



My editing adds tremendous value to your document, but I am only human. Although I rigorously check and recheck my work, it is impossible to guarantee 100% perfection.

To whom it may concern

I edited the thesis titled: Omnichannel Shopper Behaviour in the emerging South African Fourth Industrial Revolution Environment, submitted in fulfilment of the requirements of the degree of Doctor of Philosophy in Management Sciences specialising in Marketing in the Faculty of Management Sciences at the Durban University of Technology by TESSA REDDY, student number 20923610.

Sury Bisetty (24 February 2025)
Professional Language and Technical Editor

CONTACT DETAILS

Email: surybisetty11@gmail.com

Cell no: 0844932878

Tel.: 031 7622 766

MEMBER OF:

Professional Editor's Guild (BIS002)
South African Council of Educators (222277)
SAMEA (761237008553)

CERTIFICATION:

BA, PG, UHDE (English Majors)
MLA – Academic Editing & Proofreading
ELSEVIER – Editor's guide to reviewing
Editing Mastery: How to Edit to Perfection
Complete writing, editing master class.
PEGSA: Critical Reading [etc.]

Disclaimer: I provided language and technical editing as per discussion with the client. The content and structure of the thesis were not amended in any way. The edited work described here may not be identical to that submitted. The author, at his/her sole discretion, has the prerogative to accept, delete, or change amendments/suggestions made by the editor before submission.

APPENDIX J: TURNITIN REPORT

Turnitin Originality Report

- Processed on: 13-Apr-2025 13:15 SAST
- ID: 2644145443
- Word Count: 102141
- Submitted: 3

Tessa Reddy 20923610 Final 13 April 2025 turnitin.docx By Tessa Reddy

Similarity Index

16%

Similarity by Source

Internet Sources:

7%

Publications:

10%

Student Papers:

8%

5% match (student papers from 16-Dec-2022)

Class: Doctoral Study

Assignment: Research Methodology

Paper ID: [1780201985](#)

1% match (student papers from 06-Jan-2020)

[Submitted to The Robert Gordon University on 2020-01-06](#)

< 1% match (student papers from 26-Nov-2024)

[Submitted to Durban University of Technology on 2024-11-26](#)

< 1% match (student papers from 06-Mar-2025)

[Submitted to Durban University of Technology on 2025-03-06](#)

< 1% match (student papers from 06-Dec-2023)

[Submitted to Durban University of Technology on 2023-12-06](#)

< 1% match (student papers from 12-Aug-2023)

[Submitted to Durban University of Technology on 2023-08-12](#)

< 1% match (student papers from 01-Apr-2025)

[Submitted to Durban University of Technology on 2025-04-01](#)

< 1% match (student papers from 17-Jul-2023)

[Submitted to Durban University of Technology on 2023-07-17](#)

< 1% match (student papers from 07-Aug-2020)

[Submitted to Durban University of Technology on 2020-08-07](#)

< 1% match (Internet from 10-Apr-2025)

<https://openscholar.dut.ac.za/server/api/core/bitstreams/02063e71-d772-432f-aff1-c2211bc761e9/content>

< 1% match (Internet from 15-Dec-2024)

https://openscholar.dut.ac.za/jspui/bitstream/10321/4818/3/Abdool_S_2023_Redacted.pdf

< 1% match (Internet from 21-Mar-2025)

https://openscholar.dut.ac.za/bitstream/10321/5859/4/Mpungose_GS_2024.pdf

< 1% match (Internet from 28-Mar-2025)

https://openscholar.dut.ac.za/bitstream/10321/5867/3/Ige_BO_2024.pdf

< 1% match (Internet from 17-Feb-2025)

https://openscholar.dut.ac.za/bitstream/10321/5571/3/Essop_L_2024.pdf

< 1% match (Internet from 08-Feb-2025)

https://openscholar.dut.ac.za/jspui/bitstream/10321/5483/3/Sibisi_C_2023.pdf

< 1% match (Internet from 18-Oct-2024)
https://openscholar.dut.ac.za/bitstream/10321/5083/3/Nyamurima_S_2023.pdf

< 1% match (Internet from 13-Mar-2025)
<https://openscholar.dut.ac.za/jspui/bitstream/10321/4252/1/M%20Moodley.pdf>

< 1% match (Mhlophe, Bongani. "Social Context Factors and Consumer Innovativeness as Drivers of Organic Food Adoption Amongst Millennials in South Africa", University of the Witwatersrand, Johannesburg (South Africa), 2025)
Mhlophe, Bongani. "Social Context Factors and Consumer Innovativeness as Drivers of Organic Food Adoption Amongst Millennials in South Africa", University of the Witwatersrand, Johannesburg (South Africa), 2025

< 1% match (student papers from 03-Dec-2024)
[Submitted to University of KwaZulu-Natal on 2024-12-03](#)

< 1% match (student papers from 22-Aug-2022)
[Submitted to University of KwaZulu-Natal on 2022-08-22](#)

< 1% match (student papers from 12-Jul-2023)
[Submitted to University of KwaZulu-Natal on 2023-07-12](#)

< 1% match (student papers from 07-Jan-2021)
[Submitted to University of KwaZulu-Natal on 2021-01-07](#)

< 1% match (student papers from 18-Aug-2019)
[Submitted to University of KwaZulu-Natal on 2019-08-18](#)

< 1% match (Internet from 08-May-2024)
<https://wiredspace.wits.ac.za/server/api/core/bitstreams/b0372273-952c-4380-805a-ad5073a33599/content>

< 1% match (Internet from 05-May-2024)
<https://wiredspace.wits.ac.za/server/api/core/bitstreams/286b45d4-9448-464e-af85-ddef19d3ff38/content>

< 1% match (Internet from 05-May-2024)
<https://wiredspace.wits.ac.za/server/api/core/bitstreams/1158b40b-3440-4b05-b6e2-2d0bae6dfa6f/content>

< 1% match (Internet from 08-May-2024)
<https://wiredspace.wits.ac.za/server/api/core/bitstreams/b7f3a5b3-7356-4d00-ab0a-d7c931204528/content>

< 1% match (Internet from 11-Oct-2017)
http://wiredspace.wits.ac.za/bitstream/handle/10539/22150/Neo%20Phiri_692755_The%20Influencers%20of%20Consumption.pdf?isAllowed=y&sequence=1

< 1% match (Internet from 05-May-2024)
<https://wiredspace.wits.ac.za/server/api/core/bitstreams/07c98bad-1413-44a5-b782-64decf46ada7/content>

< 1% match (Internet from 06-Oct-2023)
<https://wiredspace.wits.ac.za/server/api/core/bitstreams/d33aaa5d-b923-4045-b444-18e994f46e4a/content>

< 1% match (publications)
[Sai Kiran Oruganti, Dimitrios A Karras, Srinesh Singh Thakur, Janapati Krishna Chaithanya, Sukanya Metta, Amit Lathigara. "Digital Transformation and Sustainability of Business", CRC Press, 2025](#)

< 1% match (publications)
[Satyajit Chakrabarti, Subrata Chattopadhyay, Udit Chawla, Sundeep Singh Sondhi, Arunava Dalal. "Agile Business Transformations - Priorities, Lessons and Practices", Apple Academic Press, 2025](#)

< 1% match ()
[Mutanho, Peter.. "The impact of internal marketing and job satisfaction on service quality in the public health sector: the case of Zimbabwe.", 2022](#)

< 1% match (Internet from 24-Sep-2022)

https://researchspace.ukzn.ac.za/bitstream/handle/10413/20817/Naidoo_Renee_Teresa_2020.pdf?isAllowed=y&sequence=1
 < 1% match (Internet from 30-Jul-2023)
https://researchspace.ukzn.ac.za/bitstream/handle/10413/22022/Ramnundlul_Zane_2017.pdf?isAllowed=y&sequence=1
 < 1% match ()
[Lynch, Samantha. "Examining the Stages of Decision-Making in the Omnichannel Shopping Journey for Young High Involvement Female Fashion Consumers", 2018](#)
 < 1% match (Sikakana, Anele. "Millennials' Value Perception and Its Impact on Second-Hand Luxury Goods Purchase Intention.", University of Johannesburg (South Africa), 2024)
[Sikakana, Anele. "Millennials' Value Perception and Its Impact on Second-Hand Luxury Goods Purchase Intention.", University of Johannesburg \(South Africa\), 2024](#)
 < 1% match (Internet from 06-Jul-2024)
<http://stmlportal.net/index.php/resource-at-stml/download/send/47-stml-go-green-2024/213-volume-1-proceeding-go-green-24>
 < 1% match (Peter C. Verhoef, Corine S. Noordhoff, Laurens Sloot. "Reflections and predictions on effects of COVID-19 pandemic on retailing", Journal of Service Management, 2022)
[Peter C. Verhoef, Corine S. Noordhoff, Laurens Sloot. "Reflections and predictions on effects of COVID-19 pandemic on retailing", Journal of Service Management, 2022](#)
 < 1% match (Internet from 01-Jan-2022)
<https://mobt3ath.com/uplode/books/book-69139.pdf>
 < 1% match (Internet from 03-Jan-2022)
<https://mobt3ath.com/uplode/books/book-84763.pdf>
 < 1% match (Internet from 01-Jan-2022)
<https://mobt3ath.com/uplode/books/book-69507.pdf>
 < 1% match (Internet from 13-Sep-2023)
<https://www.diva-portal.org/smash/get/diva2:1773663/FULLTEXT01.pdf>
 < 1% match (Internet from 19-May-2023)
<https://www.diva-portal.org/smash/get/diva2:935866/FULLTEXT01.pdf>
 < 1% match ("Augmented Reality and Virtual Reality", Springer Science and Business Media LLC, 2018)
["Augmented Reality and Virtual Reality", Springer Science and Business Media LLC, 2018](#)
 < 1% match (publications)
[Innocent Musonda, Erastus Mwanaumo, Adetayo Onososen, Retsepile Kalaoane. "Development and Investment in Infrastructure in Developing Countries: A 10-Year Reflection", CRC Press, 2024](#)
 < 1% match (Haji Akir, Oriah. "The Influence of Attribute Importance and Interpersonal Influence on Consumer Repurchase Intention Between High and Low Involvement Products", University of Malaya (Malaysia), 2023)
[Haji Akir, Oriah. "The Influence of Attribute Importance and Interpersonal Influence on Consumer Repurchase Intention Between High and Low Involvement Products", University of Malaya \(Malaysia\), 2023](#)
 < 1% match (Nel, Sean Peter Jacques. "Customer Experience, Satisfaction and Loyalty in the Omni-Channel Retailing Journey.", University of Johannesburg (South Africa), 2024)
[Nel, Sean Peter Jacques. "Customer Experience, Satisfaction and Loyalty in the Omni-Channel Retailing Journey.", University of Johannesburg \(South Africa\), 2024](#)
 < 1% match (student papers from 17-Oct-2024)
[Submitted to University of Witwatersrand on 2024-10-17](#)
 < 1% match (student papers from 09-Jul-2024)
[Submitted to University of Witwatersrand on 2024-07-09](#)
 < 1% match (student papers from 22-Jan-2024)
[Submitted to University of Witwatersrand on 2024-01-22](#)

< 1% match (Internet from 11-Mar-2025)
<https://www.aup.edu.ph/urc/wp-content/uploads/2024/05/10ISC-FULL-PAPER-PROCEEDINGS.pdf>

< 1% match (Maya F. Farah, Zahy B. Ramadan, Dana H. Harb. "The examination of virtual reality at the intersection of consumer experience, shopping journey and physical retailing", Journal of Retailing and Consumer Services, 2019)
[Maya F. Farah, Zahy B. Ramadan, Dana H. Harb. "The examination of virtual reality at the intersection of consumer experience, shopping journey and physical retailing", Journal of Retailing and Consumer Services, 2019](#)

< 1% match (Internet from 07-Aug-2020)
https://mafiadoc.com/full-page-fax-print_5c8f99a3097c4761288b4568.html

< 1% match (Susana Costa e Silva, Carla Carvalho Martins, João Martins de Sousa. "Omnichannel approach: Factors affecting consumer acceptance", Journal of Marketing Channels, 2019)
[Susana Costa e Silva, Carla Carvalho Martins, João Martins de Sousa. "Omnichannel approach: Factors affecting consumer acceptance", Journal of Marketing Channels, 2019](#)

< 1% match (Mbeya, Steven. "Deconstructing e-Loyalty in an Online Grocery Shopping Environment.", University of Johannesburg (South Africa), 2024)
[Mbeya, Steven. "Deconstructing e-Loyalty in an Online Grocery Shopping Environment.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (Internet from 27-Oct-2024)
https://open.ocolearnok.org/informationssystem/open/download?type=print_pdf

< 1% match (Internet from 31-Aug-2024)
<https://emrbi.org/wp-content/uploads/2024/08/euromed2024-book-of-proceedings-2024-08-25.pdf>

< 1% match (publications)
[Dhananjay Mandlik, Parag Kalkar, Chandrani Singh. "Advanced Research Methodologies and Practices", Routledge, 2025](#)

< 1% match (Internet from 24-Feb-2022)
<https://ebin.pub/marketing-research-an-applied-orientation-6thnbsped-978-0-13-608543-0.html>

< 1% match (Internet from 07-Sep-2024)
<https://ebin.pub/ai-and-ml-for-coders-a-comprehensive-guide-to-artificial-intelligence-and-machine-learning-techniques-tools-real-world-applications-and-ethical-considerations-for-modern-programmers.html>

< 1% match (student papers from 01-Aug-2023)
[Submitted to Pennsylvania State System of Higher Education on 2023-08-01](#)

< 1% match (Machaka, Zivai M.. "Antecedents of Quitting Binge Drinking Behaviour: An Integrated Social Marketing Behaviour Change Model", University of Johannesburg (South Africa), 2023)
[Machaka, Zivai M.. "Antecedents of Quitting Binge Drinking Behaviour: An Integrated Social Marketing Behaviour Change Model", University of Johannesburg \(South Africa\), 2023](#)

< 1% match (Dominika Kaczorowska-Spychalska. "Consumer perspective of omnichannel commerce", Management, 2017)
[Dominika Kaczorowska-Spychalska. "Consumer perspective of omnichannel commerce", Management, 2017](#)

< 1% match (Internet from 07-Mar-2025)
<https://mjar.singhpublication.com/index.php/ojs/article/download/185/466/487>

< 1% match (publications)
[Hafinaz, R Hariharan, R. Senthil Kumar. "Recent Research in Management, Accounting and Economics \(RRMAE\) - A case study on Recent Research in Management, Accounting and Economics", Routledge, 2025](#)

< 1% match (Internet from 24-Jan-2014)

http://eprints.usq.edu.au/19623/2/Ravirala_2007_whole.pdf
 < 1% match (Internet from 24-Jan-2014)

http://eprints.usq.edu.au/19730/1/Hafeez-Baig_2010_whole.pdf
 < 1% match (Ruchi Mishra, Rajesh Kr Singh, Bernadett Koles. "Consumer decision-making in Omnichannel retailing: Literature review and future research agenda", International Journal of Consumer Studies, 2020)

[Ruchi Mishra, Rajesh Kr Singh, Bernadett Koles. "Consumer decision-making in Omnichannel retailing: Literature review and future research agenda", International Journal of Consumer Studies, 2020](#)
 < 1% match (student papers from 11-May-2011)

[Submitted to Brunel University on 2011-05-11](#)
 < 1% match (student papers from 25-Oct-2016)

[Submitted to Brunel University on 2016-10-25](#)
 < 1% match (Internet from 17-Dec-2023)

<https://ajernet.net/ojs/index.php/ajernet/issue/download/4/1>
 < 1% match (Internet from 15-Dec-2020)

<https://courses.lumenlearning.com/wmopen-retailmanagement/chapter/the-evolution-of-retail/>
 < 1% match (Ruchi Mishra, Rajesh Kumar Singh, Bernadett Koles. "Consumer decision-making in omnichannel retailing: Literature review and future research agenda", International Journal of Consumer Studies, 2020)

[Ruchi Mishra, Rajesh Kumar Singh, Bernadett Koles. "Consumer decision-making in omnichannel retailing: Literature review and future research agenda", International Journal of Consumer Studies, 2020](#)
 < 1% match (publications)

[Kanika K. Ahuja. "Navigating Intimate Relationships - Locate Your North Star", Routledge, 2025](#)
 < 1% match (Aregu Asmare, Shimelis Zewdie. "Omnichannel retailing strategy: a systematic review", The International Review of Retail, Distribution and Consumer Research, 2022)

[Aregu Asmare, Shimelis Zewdie. "Omnichannel retailing strategy: a systematic review", The International Review of Retail, Distribution and Consumer Research, 2022](#)
 < 1% match (Internet from 20-Sep-2022)

https://repository.nwu.ac.za/bitstream/handle/10394/37060/Olutade_EO.pdf?isAllowed=y&sequence=1
 < 1% match (Internet from 29-Nov-2024)

https://repository.nwu.ac.za/bitstream/handle/10394/24953/Dalziel_RC.pdf?sequenc=
 < 1% match (van Belkum, Mareli. "Male Consumers' Evaluation of Apparel Assortments in South African Speciality Stores", University of Pretoria (South Africa), 2023)

[van Belkum, Mareli. "Male Consumers' Evaluation of Apparel Assortments in South African Speciality Stores", University of Pretoria \(South Africa\), 2023](#)
 < 1% match (R. Thakur, S.C. Onwubu. "Household waste management behaviour amongst residents in an informal settlement in Durban, South Africa", Journal of Environmental Management, 2024)

[R. Thakur, S.C. Onwubu. "Household waste management behaviour amongst residents in an informal settlement in Durban, South Africa", Journal of Environmental Management, 2024](#)
 < 1% match (Internet from 19-Dec-2024)

<https://sajim.co.za/index.php/sajim/article/download/1569/2246>
 < 1% match (Internet from 25-Dec-2024)

<https://core.ac.uk/download/pdf/572227275.pdf>
 < 1% match (Internet from 10-Feb-2024)

<https://core.ac.uk/download/539536229.pdf>
 < 1% match (Internet from 27-Mar-2025)

<https://core.ac.uk/download/43173260.pdf>
 < 1% match (Internet from 11-Feb-2025)

https://repository.essex.ac.uk/17157/1/Tashkin_Vasfi_Thesis%20finalcopy.pdf
 < 1% match (student papers from 23-Sep-2022)

Submitted to Curtin University of Technology on 2022-09-23
 < 1% match (Sage Kelly, Sherrie-Anne Kaye, Oscar Oviedo-Trespalacios. "What factors contribute to the acceptance of artificial intelligence? A systematic review", Telematics and Informatics, 2023)

[Sage Kelly, Sherrie-Anne Kaye, Oscar Oviedo-Trespalacios. "What factors contribute to the acceptance of artificial intelligence? A systematic review", Telematics and Informatics, 2023](#)
 < 1% match (Issock, Paul Blaise Issock. "Determinants of Electricity Conservation in South African Households: A Social Marketing Perspective", University of Johannesburg (South Africa), 2023)

[Issock, Paul Blaise Issock. "Determinants of Electricity Conservation in South African Households: A Social Marketing Perspective", University of Johannesburg \(South Africa\), 2023](#)
 < 1% match (Internet from 07-Nov-2023)

https://etd.uum.edu.my/10709/2/s829357_02.pdf
 < 1% match (Internet from 12-Feb-2025)

http://etd.uum.edu.my/6242/1/s92800_01.pdf
 < 1% match (Internet from 22-Nov-2022)

<https://etd.uum.edu.my/5442/1/s93561.pdf>
 < 1% match (Internet from 10-May-2024)

https://pure.roehampton.ac.uk/ws/portalfiles/portal/18951700/Santharam_Viveka_Final_Thesis.p
 < 1% match ("Digital Transformation for Fashion and Luxury Brands", Springer Science and Business Media LLC, 2024)

["Digital Transformation for Fashion and Luxury Brands", Springer Science and Business Media LLC, 2024](#)
 < 1% match (Masebe, Norman L.. "Strategies to Counteract Digital Disruption Across the Hierarchy of South African Shopping Centres", University of Pretoria (South Africa), 2024)

[Masebe, Norman L.. "Strategies to Counteract Digital Disruption Across the Hierarchy of South African Shopping Centres", University of Pretoria \(South Africa\), 2024](#)
 < 1% match (publications)

[Turan Paksoy, Çiğdem Koçhan, Sadia Samar Ali. "Logistics 4.0 - Digital Transformation of Supply Chain Management", CRC Press, 2020](#)
 < 1% match (Internet from 16-Feb-2014)

<http://lnu.diva-portal.org/smash/get/diva2:533436/FULLTEXT01>
 < 1% match (Internet from 05-Feb-2019)

https://repository.up.ac.za/bitstream/handle/2263/41244/Mosupyoe_Generational_2014.pdf?isAllowed=y&sequence=1
 < 1% match (Internet from 06-Feb-2019)

https://repository.up.ac.za/bitstream/handle/2263/43248/Sofocleous_Exploring_2014.pdf?isAllowed=y&sequence=1
 < 1% match (Internet from 05-Feb-2019)

<https://repository.up.ac.za/bitstream/handle/2263/25819/dissertation.pdf?isAllowed=y&sequence=1>
 < 1% match (Correia, Miguel. "Generation Y Behavioural Intention when Purchasing Male Apparel : the Influence of Mobile Application Usage", University of Johannesburg (South Africa), 2021)

[Correia, Miguel. "Generation Y Behavioural Intention when Purchasing Male Apparel : the Influence of Mobile Application Usage", University of Johannesburg \(South Africa\), 2021](#)
 < 1% match (student papers from 07-Jun-2024)

Submitted to Mancosa on 2024-06-07

< 1% match (Singasani, Tejesh Reddy. "Quantitative Correlation Analysis of Trust Issues in AI Systems.", University of the Cumberland, 2024)

Singasani, Tejesh Reddy. "Quantitative Correlation Analysis of Trust Issues in AI Systems.", University of the Cumberland, 2024

< 1% match (Internet from 18-Mar-2012)

[http://oaithesis.eur.nl/ir/repub/asset/8901/Stierman,%20T.%20\(295254\).doc](http://oaithesis.eur.nl/ir/repub/asset/8901/Stierman,%20T.%20(295254).doc)

< 1% match (Internet from 08-Dec-2012)

<http://oaithesis.eur.nl/ir/repub/asset/5659/Crezee%2C%20Cees-Jan%20289163.doc>

< 1% match (publications)

Lokesh Jasrai. "An Introduction to Data Analysis Using IBM SPSS", Routledge, 2024

< 1% match (Internet from 04-Jan-2023)

https://dspace.nwu.ac.za/bitstream/handle/10394/37356/Jordaan_T.pdf?isAllowed=y&sequence=1

< 1% match (Internet from 10-Jan-2023)

<https://dspace.nwu.ac.za/bitstream/handle/10394/39232/27244792%20Makalani%20Y.pdf?isAllowed=y&sequence=1>

< 1% match (Internet from 09-Dec-2024)

https://dspace.nwu.ac.za/bitstream/handle/10394/8209/Fields_Z.pdf?isAllowed=y&sequence=2

< 1% match (Bell, T.. "An Exploration of Compassion Focused Therapy Chair-Work for Clients with Depression, Self-Criticism and Shame", Vaal University of Technology (South Africa), 2024)

Bell, T.. "An Exploration of Compassion Focused Therapy Chair-Work for Clients with Depression, Self-Criticism and Shame", Vaal University of Technology (South Africa), 2024

< 1% match (Euphrasie Wamunzila Kaningini, Christine Mwati Malinga, Germaine Mirindi Furaha, Jonathan Pembwe Alulea, Annick Castiaux. "Adoption of electronic commerce as a resilience strategy for women's entrepreneurship in the Democratic Republic of Congo", African Journal of Economic and Management Studies, 2023)

Euphrasie Wamunzila Kaningini, Christine Mwati Malinga, Germaine Mirindi Furaha, Jonathan Pembwe Alulea, Annick Castiaux. "Adoption of electronic commerce as a resilience strategy for women's entrepreneurship in the Democratic Republic of Congo", African Journal of Economic and Management Studies, 2023

< 1% match (publications)

H. Douglas Brown, Heekyeong Lee. "Principles of Language Learning and Teaching - A Course in Second Language Acquisition", Routledge, 2025

< 1% match (Jonker, Chanel. "Millennial Consumers' Complaint Behavioural Intentions Following Service Failure in the Online Clothing Retail Context", University of Pretoria (South Africa), 2023)

Jonker, Chanel. "Millennial Consumers' Complaint Behavioural Intentions Following Service Failure in the Online Clothing Retail Context", University of Pretoria (South Africa), 2023

< 1% match (Neha Sharma, Emiliano Acquila-Natale, Nirankush Dutta, Ángel Hernández-García. "A tale of stores and screens: Unveiling consumer behaviour in omnichannel retailing through the lens of behavioural reasoning", Electronic Commerce Research and Applications, 2025)

Neha Sharma, Emiliano Acquila-Natale, Nirankush Dutta, Ángel Hernández-García. "A tale of stores and screens: Unveiling consumer behaviour in omnichannel retailing through the lens of behavioural reasoning", Electronic Commerce Research and Applications, 2025

< 1% match (Internet from 26-Dec-2022)

<https://dokumen.pub/marketing-research-an-applied-approach-9781292103129-9781292103150-9781292211329-2672682682-1292103124-1292103159.html>

< 1% match (Internet from 15-Aug-2024)

<https://dokumen.pub/collaboration-and-integration-in-construction-engineering-management-and-technology-proceedings-of-the-11th-international-conference-on-in-science-technology-amp-innovation-3030484645-9783030484644.html>
< 1% match (Internet from 21-Aug-2022)

<https://dokumen.pub/research-methodology-concepts-and-cases-2nbsped-9325982390-9789325982390.html>
< 1% match ()

[Onyia, Okey Peter. "Customer adoption of internet banking : a cross-national study in Scotland and Nigeria of a proposed model of universal determinants", 2009](#)
< 1% match (publications)

[Hannah D. Walters, Rachel M. Hammond. "AI in Marketing - Applications, Insights and Analysis", Routledge, 2025](#)
< 1% match (van Niekerk, Karen. "Factors that Influence the Adoption of mCommerce Applications for Purchasing Athletic Fashion Apparel", University of Johannesburg (South Africa), 2021)

[van Niekerk, Karen. "Factors that Influence the Adoption of mCommerce Applications for Purchasing Athletic Fashion Apparel", University of Johannesburg \(South Africa\), 2021](#)
< 1% match (Iftikhar, Rehan. "Design of Technology-Enabled Interactions for Flow Experience in an Omnichannel Customer Journey", National University of Ireland, Maynooth (Ireland), 2024)

[Iftikhar, Rehan. "Design of Technology-Enabled Interactions for Flow Experience in an Omnichannel Customer Journey", National University of Ireland, Maynooth \(Ireland\), 2024](#)
< 1% match (Ramadan, Maha S.. "Consumer's Perspectives of the Omnichannel Retailing Environment-Determinants and Outcomes of Omnichannel Retailing Synergies on Customer Experience and Patronage Intention.", Indiana University of Pennsylvania, 2023)

[Ramadan, Maha S.. "Consumer's Perspectives of the Omnichannel Retailing Environment-Determinants and Outcomes of Omnichannel Retailing Synergies on Customer Experience and Patronage Intention.", Indiana University of Pennsylvania, 2023](#)
< 1% match (Internet from 18-May-2024)

<http://digiresearch.vut.ac.za/server/api/core/bitstreams/40af22ba-86c2-46f6-bc31-3f73e5feaab9/content>
< 1% match ()

[Aniba, Naser.. "An investigation into factors of e-CRM influencing customer retention in Afrigiyah Airways.", Sheffield Hallam University.](#)
< 1% match ()

[Baraa Alghalyini, Abdul Rehman Zia Zaidi, Racha Khaled, Fatima Adem, Mohammad Amin Alswes, Bushra Hafez, Fatima Zia Zaidi. "Developing a tool to evaluate the impact of a student-led community-engaging health promotion project on knowledge translation skills in medical students", BMC Medical Education](#)
< 1% match (Internet from 31-Dec-2023)

<https://fastercapital.com/keyword/exact-change.html>
< 1% match (Internet from 30-Sep-2017)

<http://icim.vamk.fi/2014/uploads/UploadPaperDir/7thICIM2010.pdf>
< 1% match (Internet from 09-Dec-2022)

<https://luanvan.co/luan-van/de-tai-anh-huong-cua-cac-yeu-to-van-hoa-doanh-nghiep-den-su-cam-ket-gan-bo-voi-to-chuc-cua-nhan-vien-tai-ngan-hang-64031/>
< 1% match (Internet from 25-Nov-2022)

<http://repository.dkut.ac.ke:8080/xmlui/bitstream/handle/123456789/4644/Allan%20Kuria.pdf?isAllowed=y&sequence=1>
< 1% match (Internet from 21-Oct-2018)

https://researcharchive.lincoln.ac.nz/bitstream/handle/10182/7323/Long_MCM.pdf?sequ=

< 1% match (Cunningham, Nicole. "Consumer Perceptions of Shopping Channel Attributes and Risk Factors Influencing Apparel Purchases", University of Johannesburg (South Africa), 2021)
[Cunningham, Nicole. "Consumer Perceptions of Shopping Channel Attributes and Risk Factors Influencing Apparel Purchases", University of Johannesburg \(South Africa\), 2021](#)

< 1% match (Conley-Temgire, Lois Samantha. "Empowering School Leaders Using Future-Fit Leadership Principles in the Area of the Fourth Industrial Revolution (4IR).", University of Johannesburg (South Africa), 2024)
[Conley-Temgire, Lois Samantha. "Empowering School Leaders Using Future-Fit Leadership Principles in the Area of the Fourth Industrial Revolution \(4IR\).", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (Internet from 23-May-2023)
<https://digitalscholarship.unlv.edu/cgi/viewcontent.cgi?article=2681&context=thesesdissertations>

< 1% match (Internet from 01-Apr-2021)
<https://ro.uow.edu.au/cgi/viewcontent.cgi?amp=&article=1419&context=theses>

< 1% match (Jowett, Benjamin Richard. "A Framework for the Implementation of Mobile BIM Technology at Project and Organisational Level Supporting Lean Construction Approaches.", University of Northumbria at Newcastle (United Kingdom))
[Jowett, Benjamin Richard. "A Framework for the Implementation of Mobile BIM Technology at Project and Organisational Level Supporting Lean Construction Approaches.", University of Northumbria at Newcastle \(United Kingdom\)](#)

< 1% match (Yang Chen, Christy M.K. Cheung, Chee-Wee Tan. "Omnichannel business research: Opportunities and challenges", Decision Support Systems, 2018)
[Yang Chen, Christy M.K. Cheung, Chee-Wee Tan. "Omnichannel business research: Opportunities and challenges", Decision Support Systems, 2018](#)

< 1% match (Azionya, Caroline Muyaluka. "The Value Creation of South African Millennial Interactions on Digital Multi-Sided Platforms in the Fourth Industrial Revolution.", University of Johannesburg (South Africa), 2024)
[Azionya, Caroline Muyaluka. "The Value Creation of South African Millennial Interactions on Digital Multi-Sided Platforms in the Fourth Industrial Revolution.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (Ncube, Anele. "Emotional Intelligence and Performance of Small and Medium Enterprise Managers in Sub-Saharan Africa: The Case of South Africa", UNICAF University)
[Ncube, Anele. "Emotional Intelligence and Performance of Small and Medium Enterprise Managers in Sub-Saharan Africa: The Case of South Africa", UNICAF University](#)

< 1% match (Internet from 27-Jan-2017)
<https://aut.researchgateway.ac.nz/bitstream/handle/10292/10107/PetrovaK.pdf?isAllowed=y&sequence=4>

< 1% match (Internet from 26-Feb-2025)
<https://www.hotbot.com/answers/what-is-descriptive-statistics>

< 1% match (publications)
[Muhammad Waseem Bari, Francesca Di Virgilio. "Handbook of Talent Management and Learning Organizations - A Post-Pandemic Perspective", CRC Press, 2025](#)

< 1% match (student papers from 30-Aug-2019)
[Submitted to University of Birmingham on 2019-08-30](#)

< 1% match (Atud, Vivian Abit. "Green Marketing, Green Corporate Governance Commitment and Its Impact on Firm Performance : The Case of Electronic Manufacturers in South Africa", University of the Witwatersrand, Johannesburg (South Africa), 2025)
[Atud, Vivian Abit. "Green Marketing, Green Corporate Governance Commitment and Its Impact on Firm Performance : The Case of Electronic Manufacturers in South Africa", University of the Witwatersrand, Johannesburg \(South Africa\), 2025](#)

< 1% match (publications)

[Edoardo Magnotta. "Digital Disruption in Marketing and Communications - A Strategic and Organizational Approach", Routledge, 2019](#)

< 1% match (student papers from 12-Jun-2024)

[Submitted to Lupane State University on 2024-06-12](#)

< 1% match (Santana, Chanel Laurinda. "Social Media Marketing on Instagram: Influences on Female Millennials' Purchase Intentions.", University of Johannesburg (South Africa), 2024)

[Santana, Chanel Laurinda. "Social Media Marketing on Instagram: Influences on Female Millennials' Purchase Intentions.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (student papers from 20-Sep-2024)

[Submitted to Miva Open University on 2024-09-20](#)

< 1% match (student papers from 27-Mar-2012)

[Submitted to Universitat Mannheim on 2012-03-27](#)

< 1% match (Villeneuve-Dyce, Judy S.. "Shared Goals for K-12 Education: Exploring Parent, Educator and Parent-Educator Perspectives About Controversial K to 12 Curricula, State Anti-critical Race Theory Legislation and Proposed Federal Parent Bill of Rights to Inform Collaborative Policy Design and Implementation Strategies", Northeastern University, 2024)

[Villeneuve-Dyce, Judy S.. "Shared Goals for K-12 Education: Exploring Parent, Educator and Parent-Educator Perspectives About Controversial K to 12 Curricula, State Anti-critical Race Theory Legislation and Proposed Federal Parent Bill of Rights to Inform Collaborative Policy Design and Implementation Strategies", Northeastern University, 2024](#)

< 1% match (Internet from 17-Dec-2024)

<https://etd.auburn.edu/bitstream/handle/10415/2217/Bo.Dissertation.Final.07.12.pdf;sequ>

< 1% match (Internet from 21-May-2018)

<http://researchbank.rmit.edu.au/view/rmit:161670/Moghimi.pdf>

< 1% match (Internet from 17-Aug-2020)

<http://researchbank.rmit.edu.au/eserv/rmit:162455/Biru.pdf>

< 1% match (Internet from 19-Apr-2015)

<http://www.tesisenred.net/bitstream/handle/10803/22657/taam.pdf?sequence=3>

< 1% match (student papers from 27-Jan-2018)

[Submitted to Erasmus University of Rotterdam on 2018-01-27](#)

< 1% match (Stuijts, Marcel. "Structural Local Authority Collaboration in the Netherlands.", University of South Wales (United Kingdom), 2020)

[Stuijts, Marcel. "Structural Local Authority Collaboration in the Netherlands.", University of South Wales \(United Kingdom\), 2020](#)

< 1% match (Internet from 23-Jan-2024)

<http://docs.neu.edu.tr/library/9615682180.pdf>

< 1% match ()

[Denton, Theresa Leoni. "Leadership styles of senior librarians in the City of Cape Town", University of the Western Cape, 2013](#)

< 1% match (Internet from 22-Dec-2023)

<http://repository.msa.edu.eg/xmlui/bitstream/handle/123456789/5239/The%20relationship%20between%20strategy%20mapping%20and%20the%20strategy%20formulation%2c%20communication%20and%20implementation.pdf?isAllowed=y&sequence=1>

< 1% match (Internet from 10-Jun-2020)

http://saudaihoc.tmu.edu.vn/uploads/saudaihoc/news/2017_05/la-nguyen-thi-thu-huong-25a-tm.pdf

< 1% match (Internet from 24-Feb-2025)

http://scholar.uoc.ac.in/bitstream/handle/20.500.12818/1866/948_Rahul.pdf?isAllowed=y&sequence=1

< 1% match (Mindu, Nkululeko. "Supply and Demand of Data Science Skills in South Africa", University of the Witwatersrand, Johannesburg (South Africa), 2025)

[Mindu, Nkululeko. "Supply and Demand of Data Science Skills in South Africa", University of the Witwatersrand, Johannesburg \(South Africa\), 2025](#)

< 1% match (Nkosi, Thalente Lungile. "Harnessing the Fourth Industrial Revolution for Improved Educational Infrastructure in South African Higher Education Institutions.", University of Johannesburg (South Africa), 2024)

[Nkosi, Thalente Lungile. "Harnessing the Fourth Industrial Revolution for Improved Educational Infrastructure in South African Higher Education Institutions.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (student papers from 18-Aug-2017)

[Submitted to Sheffield Hallam University on 2017-08-18](#)

< 1% match (Internet from 05-Mar-2023)

https://research-repository.griffith.edu.au/bitstream/handle/10072/368139/So_2013_02%20Theisis.pdf?isAllowed=y&sequence=1

< 1% match (Jun-Hwa Cheah, Xin-Jean Lim, Hiram Ting, Yide Liu, Sara Quach. "Are privacy concerns still relevant? Revisiting consumer behaviour in omnichannel retailing", Journal of Retailing and Consumer Services, 2020)

[Jun-Hwa Cheah, Xin-Jean Lim, Hiram Ting, Yide Liu, Sara Quach. "Are privacy concerns still relevant? Revisiting consumer behaviour in omnichannel retailing", Journal of Retailing and Consumer Services, 2020](#)

< 1% match (Smit, Cameron Sean. "Technology Readiness and Mobile Self-Service Technology Adoption in the Airline Industry", University of Johannesburg (South Africa), 2021)

[Smit, Cameron Sean. "Technology Readiness and Mobile Self-Service Technology Adoption in the Airline Industry", University of Johannesburg \(South Africa\), 2021](#)

< 1% match (Thekiso, Ramotlhantsweng Michael Gilbert. "Evaluating South Africa's Policy and Institutional Frameworks to Combat Terrorism: Implications for Security Sector Reform.", University of Pretoria (South Africa), 2024)

[Thekiso, Ramotlhantsweng Michael Gilbert. "Evaluating South Africa's Policy and Institutional Frameworks to Combat Terrorism: Implications for Security Sector Reform.", University of Pretoria \(South Africa\), 2024](#)

< 1% match (student papers from 26-Sep-2016)

[Submitted to University of Cape Town on 2016-09-26](#)

< 1% match (Internet from 05-Oct-2022)

<http://vital.seals.ac.za:8080/vital/access/services/Download/vital:30786/SOURCE1>

< 1% match (publications)

[Joyce Costello, Sevil Yesiloglu. "Influencer Marketing - Building Brand Communities and Engagement", Routledge, 2025](#)

< 1% match (Muhammad Farooq, Muhammad Ramzan, Yuen Yee Yen. "chapter 11 AI in Consumer Behavior Management", IGI Global, 2024)

[Muhammad Farooq, Muhammad Ramzan, Yuen Yee Yen. "chapter 11 AI in Consumer Behavior Management", IGI Global, 2024](#)

< 1% match (Xiangying Hu, Bixia Wang, Ting Pan, Weijun Yuan, Lili Hou. "Development and validation of the Participation in Treatment Decision-Making Scale for Adults with Malocclusion (PTDMS-AM)", Springer Science and Business Media LLC, 2024)

[Xiangying Hu, Bixia Wang, Ting Pan, Weijun Yuan, Lili Hou. "Development and validation of the Participation in Treatment Decision-Making Scale for Adults with Malocclusion \(PTDMS-AM\)", Springer Science and Business Media LLC, 2024](#)

< 1% match (Internet from 16-Dec-2024)

https://era.ed.ac.uk/bitstream/handle/1842/36211/DaxiniA_2020.pdf?sequence=4

< 1% match (Internet from 04-Dec-2022)

<https://kc.umn.ac.id/20231/8/LAMPIRAN.pdf>

< 1% match (Daniels, Tracy. "A Recovery Framework for Sport Tourism Events in South Africa.", University of Johannesburg (South Africa), 2024)
[Daniels, Tracy. "A Recovery Framework for Sport Tourism Events in South Africa.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (Ming, Choo Siew. "Psychological Determinants of Financial Planning for Retirement among University Employees", University of Malaya (Malaysia), 2023)
[Ming, Choo Siew. "Psychological Determinants of Financial Planning for Retirement among University Employees", University of Malaya \(Malaysia\), 2023](#)

< 1% match (publications)
[Yan Jin, Lucinda Austin. "Social Media and Crisis Communication - Second Edition", Routledge, 2022](#)

< 1% match (Internet from 30-Oct-2022)
http://essay.utwente.nl/75445/2/vonTippelskirch_BA_BMS.pdf

< 1% match (Dlamini, Thulisile. "Contribution of the Local and Home-Food Environments on the Food Practices of Black Adults in Gauteng.", University of Pretoria (South Africa))
[Dlamini, Thulisile. "Contribution of the Local and Home-Food Environments on the Food Practices of Black Adults in Gauteng.", University of Pretoria \(South Africa\)](#)

< 1% match (publications)
[Mahender Singh Kaswan, Rajeev Rathi, Jose Arturo Garza-Reyes. "Industry 5.0 - Concepts and Strategies for Digital Transformation", CRC Press, 2025](#)

< 1% match (Mbambonduna, Thobeka. "Footwear Cues Influencing Perceived Quality and Consumer Satisfaction Amongst Generation Y Consumers at River Square Mall, Vereeniging", Vaal University of Technology (South Africa), 2024)
[Mbambonduna, Thobeka. "Footwear Cues Influencing Perceived Quality and Consumer Satisfaction Amongst Generation Y Consumers at River Square Mall, Vereeniging", Vaal University of Technology \(South Africa\), 2024](#)

< 1% match (Payal Mehra. "Chapter 20 A Socio-Technical Perspective on Computer Mediated Communication: Comparison of Government and Non Government Sectors in India", Springer Science and Business Media LLC, 2010)
[Payal Mehra. "Chapter 20 A Socio-Technical Perspective on Computer Mediated Communication: Comparison of Government and Non Government Sectors in India", Springer Science and Business Media LLC, 2010](#)

< 1% match (Internet from 10-Jan-2025)
<https://ir.ucc.edu.gh/xmlui/bitstream/handle/123456789/10901/ADORM-TAKYI%2c%202023.pdf?isAllowed=y&sequence=1>

< 1% match (Jhang, Rong-Rong. "Exploring the Acceptance of Taiwanese College Students Using ChatGPT for Translation Revision Feedback", National Taiwan Normal University (Taiwan))
[Jhang, Rong-Rong. "Exploring the Acceptance of Taiwanese College Students Using ChatGPT for Translation Revision Feedback", National Taiwan Normal University \(Taiwan\)](#)

< 1% match (publications)
[Julie Pallant. "SPSS Survival Manual - A Step by Step Guide to Data Analysis Using IBM SPSS", Routledge, 2020](#)

< 1% match (Phora, Jack Sefako. "Developing a Legal Framework for e-Commerce in South Africa", University of Pretoria (South Africa), 2023)
[Phora, Jack Sefako. "Developing a Legal Framework for e-Commerce in South Africa", University of Pretoria \(South Africa\), 2023](#)

< 1% match (publications)
[Prashant Pranav, Archana Patel, Sarika Jain. "Machine Learning in Healthcare and Security - Advances, Obstacles and Solutions", CRC Press, 2024](#)

< 1% match (Smit, Tanya. "Self-Regulated Professionalism: A Whole Brain® Participatory Action Research Design in a Pre-Service Teacher Mentoring Context", University of Pretoria (South Africa), 2023)

[Smit, Tanya. "Self-Regulated Professionalism: A Whole Brain@Participatory Action Research Design in a Pre-Service Teacher Mentoring Context", University of Pretoria \(South Africa\), 2023](#)

< 1% match (Internet from 04-Mar-2024)

<https://open-innovation-projects.org/blog/build-a-powerful-and-efficient-open-source-ai-database-for-optimized-data-storage-and-management>

< 1% match (Internet from 23-May-2024)

https://www.theseus.fi/bitstream/handle/10024/856415/Makurina_Iuliia.pdf?isAllowed=y&sequence=2

< 1% match ("Persuasive Technology. Designing for Future Change", Springer Science and Business Media LLC, 2020)

["Persuasive Technology. Designing for Future Change", Springer Science and Business Media LLC, 2020](#)

< 1% match (publications)

[Information Technology & People, Volume 27, Issue 3 \(2014-09-16\)](#)

< 1% match (student papers from 28-Feb-2025)

[Submitted to Malaysia University of Science and Technology on 2025-02-28](#)

< 1% match (Maree, Marinda. "The Role of Self-Efficacy in the Careers of Women in the Field of Science Technology Engineering and Mathematics (STEM)", University of Pretoria (South Africa), 2023)

[Maree, Marinda. "The Role of Self-Efficacy in the Careers of Women in the Field of Science Technology Engineering and Mathematics \(STEM\)", University of Pretoria \(South Africa\), 2023](#)

< 1% match (publications)

[Perry R. Hinton. "Statistics Explained", Routledge, 2024](#)

< 1% match (Sekgololo, Mancha Johannes. "The State of Cybersecurity in South Africa, 2010-2019", University of Johannesburg (South Africa), 2023)

[Sekgololo, Mancha Johannes. "The State of Cybersecurity in South Africa, 2010-2019", University of Johannesburg \(South Africa\), 2023](#)

< 1% match (Internet from 16-Aug-2014)

<http://epubs.scu.edu.au/cgi/viewcontent.cgi?article=1153&context=theses>

< 1% match (Internet from 01-May-2024)

<https://nicsforschoolleaders.tpdatscalecoalition.org/wp-content/uploads/2024/02/proceedings-vs3-c9448beda0361a24.pdf>

< 1% match (Hyo Geun Song, Hyeon Jo. "Understanding the Continuance Intention of Omnichannel: Combining TAM and TPB", Sustainability, 2023)

[Hyo Geun Song, Hyeon Jo. "Understanding the Continuance Intention of Omnichannel: Combining TAM and TPB", Sustainability, 2023](#)

< 1% match (publications)

[Iain MacRury, Danae Manika. "Digital Advertising Evolution", Routledge, 2024](#)

< 1% match (Ormond, Jake Allan. "An Exploration of the Influence of Local Church Leaders' Servant Leadership Behaviors on Members' Religiosity in The Church of Jesus Christ of Latter-Day Saints", Eastern University)

[Ormond, Jake Allan. "An Exploration of the Influence of Local Church Leaders' Servant Leadership Behaviors on Members' Religiosity in The Church of Jesus Christ of Latter-Day Saints", Eastern University](#)

< 1% match (Thigpen, Sharee A.. "Student-Identified Influences on Academic Success: A Qualitative Study of Alumni Descriptions of Their Prior Experiences in a Central Ohio High School", Franklin University, 2024)

[Thigpen, Sharee A.. "Student-Identified Influences on Academic Success: A Qualitative Study of Alumni Descriptions of Their Prior Experiences in a Central Ohio High School", Franklin University, 2024](#)

< 1% match (Tlale, M. T.. "Supply Chain Capabilities, Agility and Firm Performance in a Developing Economy", Vaal University of Technology (South Africa), 2024)
[Tlale, M. T.. "Supply Chain Capabilities, Agility and Firm Performance in a Developing Economy", Vaal University of Technology \(South Africa\), 2024](#)

< 1% match (Internet from 29-Oct-2024)
https://s3.eu-central-1.amazonaws.com/eu-st01.ext.exlibrisgroup.com/27UOJ_INST/storage/alma/A3/17/23/64/4B/8E/A4/A0/D8/F5/7D/C1/7A/6A/FB/15/Adesominu%20O%20Wtm.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAJN6NPMNGJALPPWAQ%2F20241029%2Feu-central-1%2Fs3%2Faws4_request&X-Amz-Date=20241029T214655Z&X-Amz-Expires=119&X-Amz-Signature=e164f7ffc7fb82d0ccc9406041c1c90f16e1ce7806653a1257958a8bf5e8cb6c&X-Amz-SignedHeaders=host&response-content-type=application%2Fpdf

< 1% match ("Perspectives on Consumer Behaviour", Springer Science and Business Media LLC, 2020)
["Perspectives on Consumer Behaviour", Springer Science and Business Media LLC, 2020](#)

< 1% match (Garrick, John. "Online Cause Related Marketing: The Impact of Brand Experience on Consumer's Brand Credibility Perceptions and the Moderating Influence of Consumer Cause Involvement in the UK Retail Sector.", University of Salford (United Kingdom))
[Garrick, John. "Online Cause Related Marketing: The Impact of Brand Experience on Consumer's Brand Credibility Perceptions and the Moderating Influence of Consumer Cause Involvement in the UK Retail Sector.", University of Salford \(United Kingdom\)](#)

< 1% match (John Mangundu. "Exploring drivers of academic integrity violation in e-assessments by students during the emergency remote teaching", 2018 International Conference on Multidisciplinary Research, 2022)
[John Mangundu. "Exploring drivers of academic integrity violation in e-assessments by students during the emergency remote teaching", 2018 International Conference on Multidisciplinary Research, 2022](#)

< 1% match (Moezoddin, Attieh. "Developing a Contextualised Framework for Culture-Led Urban Sustainable Development Through Creative Hub Concept (a Case Study of Iranian Free Zone)", University of Salford (United Kingdom), 2022)
[Moezoddin, Attieh. "Developing a Contextualised Framework for Culture-Led Urban Sustainable Development Through Creative Hub Concept \(a Case Study of Iranian Free Zone\)", University of Salford \(United Kingdom\), 2022](#)

< 1% match (Muhlare, Mukelani Lancelot. "Self-Care Behaviours and Practices of Professional Nurses Working in Primary Healthcare Clinics.", University of Johannesburg (South Africa), 2024)
[Muhlare, Mukelani Lancelot. "Self-Care Behaviours and Practices of Professional Nurses Working in Primary Healthcare Clinics.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (Rankapola, Madute Elias. "A Model to Measure the E-Learning System Success at a University of Technology in South Africa", Vaal University of Technology (South Africa), 2024)
[Rankapola, Madute Elias. "A Model to Measure the E-Learning System Success at a University of Technology in South Africa", Vaal University of Technology \(South Africa\), 2024](#)

< 1% match (S.C. Vetrivel, T.P. Saravanan, R. Maheswari, V.P. Arun. "Role of Mimic Technology in Consumer Decision-Making Journey", Emerald, 2025)
[S.C. Vetrivel, T.P. Saravanan, R. Maheswari, V.P. Arun. "Role of Mimic Technology in Consumer Decision-Making Journey", Emerald, 2025](#)

< 1% match (Steinhobel, Elizabeth. "The Influence of Brand Knowledge and Brand Relationships on Current and Future Consumption of Low-And No-Alcohol Beer.", University of Johannesburg (South Africa), 2024)

[Steinhobel, Elizabeth. "The Influence of Brand Knowledge and Brand Relationships on Current and Future Consumption of Low-And No-Alcohol Beer.", University of Johannesburg \(South Africa\), 2024](#)
 < 1% match (Internet from 11-Dec-2024)
<https://actacommercii.co.za/index.php/acta/article/view/961/1656>
 < 1% match (Internet from 29-Feb-2024)
<https://theses.ncl.ac.uk/jspui/bitstream/10443/5806/1/Huo%20Wenjin%20e-copy.pdf>
 < 1% match (Internet from 12-Aug-2024)
<https://www.coursehero.com/file/p1a15mp9/An-increase-in-population-size-in-trading-centers-resulted-in-establishing/>
 < 1% match (student papers from 15-Aug-2024)
[Submitted to Aeres Hogeschool on 2024-08-15](#)
 < 1% match (publications)
[Emeritus Alan Reid. "Changing Australian Education - How policy is taking us backwards and what can be done about it", Routledge, 2020](#)
 < 1% match (Ngouapegne, Chriss Narick Mangoukou. "The Drivers of Supply Chain Performance in the Food Retail Industry in Gauteng Province", Vaal University of Technology (South Africa), 2024)
[Ngouapegne, Chriss Narick Mangoukou. "The Drivers of Supply Chain Performance in the Food Retail Industry in Gauteng Province", Vaal University of Technology \(South Africa\), 2024](#)
 < 1% match (publications)
[Sudhir Rana, Priya Jindal, Indrajit Ghosal, Arpan Anand, Subhadeep Mukherjee. "Marketing Perspectives on Phygitalization", Apple Academic Press, 2025](#)
 < 1% match (Internet from 24-Mar-2025)
http://dspace.bu.ac.th/bitstream/123456789/5891/1/panutchakorn_sriu.pdf
 < 1% match (Internet from 24-Jun-2011)
http://ep3.uum.edu.my/1681/1/Mahmoud_Mohmad_Ahmad_Al-Eqab.pdf
 < 1% match (Internet from 09-Apr-2024)
http://repository.up.ac.za:8080/bitstream/handle/2263/89284/Nyashanu_Barriers_2023.pdf?isAllowed=y&sequence=1
 < 1% match (Internet from 10-Aug-2023)
https://v-des-dev-inx1.nwu.ac.za/bitstream/handle/10394/32308/Mareka_TT.pdf?isAllowed=y&sequence=1
 < 1% match (Li, Chen. "Loyalty Programs: Impact of Marketing Channels and Customer Relationship Characteristics.", Drexel University, 2021)
[Li, Chen. "Loyalty Programs: Impact of Marketing Channels and Customer Relationship Characteristics.", Drexel University, 2021](#)
 < 1% match (publications)
[Mansi Babbar, Mohammed Majeed, Mustahid M. Husain, Nitu Ghosh. "Emerging Digitalization Trends in Business and Management - ", Apple Academic Press, 2025](#)
 < 1% match (publications)
[Peng Liu, Lei Mee Thien. "Understanding Teacher Leadership in Educational Change - An International Perspective", Routledge, 2025](#)
 < 1% match (Richard George. "Chapter 3 Tourism and Hospitality Consumer Behaviour", Springer Science and Business Media LLC, 2025)
[Richard George. "Chapter 3 Tourism and Hospitality Consumer Behaviour", Springer Science and Business Media LLC, 2025](#)
 < 1% match (Slabbert, H. O.. "The Influence of Employee Engagement on Customer Experience in a Customer Centric Climate and Culture", University of Johannesburg (South Africa), 2021)
[Slabbert, H. O.. "The Influence of Employee Engagement on Customer Experience in a Customer Centric Climate and Culture", University of Johannesburg \(South Africa\), 2021](#)

< 1% match (Yao, Yao. "Analysing the Impact of Luxury Fashion Brands' Firm-Generated Content on Consumer's Attention, Attitudes and Purchase Intention in China and the Moderating Effects of Involvement.", The University of Manchester (United Kingdom), 2021)
[Yao, Yao. "Analysing the Impact of Luxury Fashion Brands' Firm-Generated Content on Consumer's Attention, Attitudes and Purchase Intention in China and the Moderating Effects of Involvement.", The University of Manchester \(United Kingdom\), 2021](#)

< 1% match (Internet from 04-Feb-2022)
https://deepblue.lib.umich.edu/bitstream/handle/2027.42/169639/kathrina_1.pdf?isAllowed=y&sequence=1

< 1% match (Internet from 02-Feb-2025)
<https://www.bookekey.app/book/the-cartoon-introduction-to-statistics>

< 1% match (publications)
[\(Universität Leipzig, Institut für Wirtschaftsinformatik\). "Proceedings of the 11th International Conference on Wirtschaftsinformatik \(WI2013\) - Volume 2", Universitätsbibliothek Leipzig, 2013.](#)

< 1% match (Afonso, Vasco Alexandre Machado. "Research-Shopper Phenomenon: Combinations of Channels and Touchpoints on the Customer Journey in Generation z", Universidade do Algarve (Portugal), 2024)
[Afonso, Vasco Alexandre Machado. "Research-Shopper Phenomenon: Combinations of Channels and Touchpoints on the Customer Journey in Generation z", Universidade do Algarve \(Portugal\), 2024](#)

< 1% match (Arlene Supremo, Sillmark Bacason, Alexander Rex Sañosa. "Sociodemographic correlates of older adult acceptance of the COVID-19 vaccine", Jurnal Ners, 2022)
[Arlene Supremo, Sillmark Bacason, Alexander Rex Sañosa. "Sociodemographic correlates of older adult acceptance of the COVID-19 vaccine", Jurnal Ners, 2022](#)

< 1% match (student papers from 03-Oct-2018)
[Submitted to CTI Education Group on 2018-10-03](#)

< 1% match (student papers from 27-Aug-2014)
[Submitted to Cranfield University on 2014-08-27](#)

< 1% match (Diane Stottlemeyer. "chapter 9 What Is the Best Learning Process for Motivating Students?", IGI Global, 2024)
[Diane Stottlemeyer. "chapter 9 What Is the Best Learning Process for Motivating Students?", IGI Global, 2024](#)

< 1% match (Tung-Lai Hu, Chuang-Min Chao, Wen-Kai Hsieh, Chia-Hung Lin. "The Impact Mechanism of Video Maturity and Content Empowerment on Purchase Intentions: A Case Study of Agricultural Tourism in Taiwan", Sustainability, 2025)
[Tung-Lai Hu, Chuang-Min Chao, Wen-Kai Hsieh, Chia-Hung Lin. "The Impact Mechanism of Video Maturity and Content Empowerment on Purchase Intentions: A Case Study of Agricultural Tourism in Taiwan", Sustainability, 2025](#)

< 1% match (Internet from 27-Nov-2024)
<https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-024-03336-0>

< 1% match (student papers from 17-Sep-2024)
[Submitted to bou on 2024-09-17](#)

< 1% match (Internet from 27-Nov-2022)
<http://usir.salford.ac.uk/id/eprint/43826/3/VIVA%20submission%20draft%20final%20with%20corrections.pdf>

< 1% match (student papers from 03-Jun-2023)
[Submitted to CINEC Campus on 2023-06-03](#)

< 1% match (G. Culjak. "Exploring the Benefits of Using Motes to Monitor Health: An Acceptance Survey", International Conference on Networking International Conference on Systems and International Conference on Mobile Communications and Learning Technologies (ICNICONSMCL 06), 2006)

[G. Culjak. "Exploring the Benefits of Using Motes to Monitor Health: An Acceptance Survey", International Conference on Networking International Conference on Systems and International Conference on Mobile Communications and Learning Technologies \(ICNICONSMCL 06\), 2006](#)

< 1% match (Park Thaichon, Sara Quach, Mojtaba Barari, Mai Nguyen. "Exploring the Role of Omnichannel Retailing Technologies: Future Research Directions", Australasian Marketing Journal, 2023)

[Park Thaichon, Sara Quach, Mojtaba Barari, Mai Nguyen. "Exploring the Role of Omnichannel Retailing Technologies: Future Research Directions", Australasian Marketing Journal, 2023](#)

< 1% match (Santimyer, Tami. "Exploring Graduate School Enrollment Decisions Among DHH and Hearing Students: Factors, Influences and Implications", Drexel University, 2024)

[Santimyer, Tami. "Exploring Graduate School Enrollment Decisions Among DHH and Hearing Students: Factors, Influences and Implications", Drexel University, 2024](#)

< 1% match (student papers from 11-Feb-2025)

[Submitted to The University of Manchester on 2025-02-11](#)

< 1% match (student papers from 09-Apr-2025)

[Submitted to University of Queensland on 2025-04-09](#)

< 1% match (student papers from 25-May-2024)

[Submitted to University of South Africa \(UNISA\) on 2024-05-25](#)

< 1% match (Öner Çelikkaleli, Rıdvan Ata, Muhammet Mustafa Alpaslan, Zafer Tangülü, Özgür Ulubey. "Examining the Roles of Problematic Internet Use and Emotional Regulation Self-Efficacy on the Relationship Between Digital Game Addiction and Motivation Among Turkish Adolescents", Behavioral Sciences, 2025)

[Öner Çelikkaleli, Rıdvan Ata, Muhammet Mustafa Alpaslan, Zafer Tangülü, Özgür Ulubey. "Examining the Roles of Problematic Internet Use and Emotional Regulation Self-Efficacy on the Relationship Between Digital Game Addiction and Motivation Among Turkish Adolescents", Behavioral Sciences, 2025](#)

< 1% match (student papers from 09-Oct-2020)

[Submitted to Griffth University on 2020-10-09](#)

< 1% match (Masataka Morita. "Consumer attitudes and automotive transactions: the difference between new-car and used-car markets in Japan", International Journal of Automotive Technology and Management, 2006)

[Masataka Morita. "Consumer attitudes and automotive transactions: the difference between new-car and used-car markets in Japan", International Journal of Automotive Technology and Management, 2006](#)

< 1% match (Sandrine A. Therese. "The role of land use and psycho-social factors in high density residents' work travel mode choices: implications for sustainable transport policy", World Review of Intermodal Transportation Research, 2010)

[Sandrine A. Therese. "The role of land use and psycho-social factors in high density residents' work travel mode choices: implications for sustainable transport policy", World Review of Intermodal Transportation Research, 2010](#)

< 1% match (Shuya Pan, Maryalice Jordan-Marsh. "Internet use intention and adoption among Chinese older adults: From the expanded technology acceptance model perspective", Computers in Human Behavior, 2010)

[Shuya Pan, Maryalice Jordan-Marsh. "Internet use intention and adoption among Chinese older adults: From the expanded technology acceptance model perspective", Computers in Human Behavior, 2010](#)

< 1% match (student papers from 17-Jan-2021)

[Submitted to South Bank University on 2021-01-17](#)

< 1% match (student papers from 04-Mar-2013)

[Submitted to University of Northumbria at Newcastle on 2013-03-04](#)

< 1% match (Zair, Ahmed K.. "The Evolution and Development of Accounting and Control Systems in U.K. Companies: An Empirical Investigation", The University of Manchester (United Kingdom))
[Zair, Ahmed K.. "The Evolution and Development of Accounting and Control Systems in U.K. Companies: An Empirical Investigation", The University of Manchester \(United Kingdom\)](#)

< 1% match ("Augmented Reality and Virtual Reality", Springer Nature, 2019)
["Augmented Reality and Virtual Reality", Springer Nature, 2019](#)

< 1% match (Balawi, Ayman. "The Effect of Transformational and Transactional Leadership Behaviors on Innovation and Work Engagement in the Hungarian Fintech Sector", University of Pécs (Hungary))
[Balawi, Ayman. "The Effect of Transformational and Transactional Leadership Behaviors on Innovation and Work Engagement in the Hungarian Fintech Sector", University of Pécs \(Hungary\)](#)

< 1% match (Lebogo, Grace Tsholofelo. "Exploring the Role of Cybersecurity Awareness Programmes in Building E-Commerce Consumer Confidence in South Africa", University of the Witwatersrand, Johannesburg (South Africa), 2025)
[Lebogo, Grace Tsholofelo. "Exploring the Role of Cybersecurity Awareness Programmes in Building E-Commerce Consumer Confidence in South Africa", University of the Witwatersrand, Johannesburg \(South Africa\), 2025](#)

< 1% match (Potgieter, Andrea. "Designing for the User: Preferred Mobile App Features", University of Johannesburg (South Africa), 2021)
[Potgieter, Andrea. "Designing for the User: Preferred Mobile App Features", University of Johannesburg \(South Africa\), 2021](#)

< 1% match (student papers from 03-Feb-2025)
[Submitted to UNICAF on 2025-02-03](#)

< 1% match (Wang, Wenxuan. "Testing and Evaluation of Large Language Models: Correctness, Non-Toxicity and Fairness.", The Chinese University of Hong Kong (Hong Kong))
[Wang, Wenxuan. "Testing and Evaluation of Large Language Models: Correctness, Non-Toxicity and Fairness.", The Chinese University of Hong Kong \(Hong Kong\)](#)

< 1% match (Internet from 20-Dec-2024)
<https://cgspace.cgiar.org/server/api/core/bitstreams/f3d9d325-4865-43ff-8d4d-9a09c63511e7/content>

< 1% match (Internet from 18-Apr-2016)
<https://dspace.lboro.ac.uk/dspace-jspui/bitstream/2134/12562/3/Thesis-2013-Ajavi.pdf>

< 1% match (Internet from 09-Nov-2023)
<https://scholars.hkbu.edu.hk/ws/portalfiles/portal/77395211/G23THFL-035395T.pdf>

< 1% match (Internet from 28-Dec-2024)
<https://www.dissertationhomework.com/samples/assignment-essay-samples/history/descriptive-research-design-explained>

< 1% match (student papers from 30-Mar-2025)
[Submitted to Central University of Technology on 2025-03-30](#)

< 1% match (Chala, Mulugeta Bayisa. "Building Foundations for Research on Self-Management for Chronic Low Back Pain in Ethiopia", Queen's University (Canada), 2023)
[Chala, Mulugeta Bayisa. "Building Foundations for Research on Self-Management for Chronic Low Back Pain in Ethiopia", Queen's University \(Canada\), 2023](#)

< 1% match (Chih-Hsing (Sam) Liu. "Creating competitive advantage through network ties, entrepreneurial orientation and intellectual capital", Management Decision, 2020)
[Chih-Hsing \(Sam\) Liu. "Creating competitive advantage through network ties, entrepreneurial orientation and intellectual capital", Management Decision, 2020](#)

< 1% match (Hoseinzadeh Nooshabadi, Mehdi. "Mitigating Young Drivers' Engagement in Distractions: Role of Emotions.", University of Toronto (Canada), 2024)

[Hoseinzadeh Nooshabadi, Mehdi. "Mitigating Young Drivers' Engagement in Distractions: Role of Emotions.", University of Toronto \(Canada\), 2024](#)

< 1% match (Mhlophe, Bongani. "Antecedents of Consumer Purchase Intentions Towards Organic Food Produces: A Case Study of the Johannesburg Municipality", University of the Witwatersrand, Johannesburg (South Africa), 2025)

[Mhlophe, Bongani. "Antecedents of Consumer Purchase Intentions Towards Organic Food Produces: A Case Study of the Johannesburg Municipality", University of the Witwatersrand, Johannesburg \(South Africa\), 2025](#)

< 1% match (Siqin Wang, Ken Nah. "Exploring Sustainable Learning Intentions of Employees Using Online Learning Modules of Office Apps Based on User Experience Factors: Using the Adapted UTAUT Model", Applied Sciences, 2024)

[Siqin Wang, Ken Nah. "Exploring Sustainable Learning Intentions of Employees Using Online Learning Modules of Office Apps Based on User Experience Factors: Using the Adapted UTAUT Model", Applied Sciences, 2024](#)

< 1% match (student papers from 12-Apr-2025)

[Submitted to University of South Africa on 2025-04-12](#)

< 1% match (Weddington, Kristen Jeanette. "A Critical Examination of the Influence of Flipped Classroom Pedagogy on Student Engagement, Motivation and Academic Performance in College Trigonometry.", Indiana Wesleyan University)

[Weddington, Kristen Jeanette. "A Critical Examination of the Influence of Flipped Classroom Pedagogy on Student Engagement, Motivation and Academic Performance in College Trigonometry.", Indiana Wesleyan University](#)

< 1% match (Internet from 17-Aug-2024)

<https://aquanet.ca/club/what-is-sams-clubs-scan-go/>

< 1% match (Internet from 27-May-2022)

<https://bspace.buid.ac.ae/bitstream/handle/1234/2012/Anissa-PHD-thesis-final-2022.pdf?isAllowed=y&sequence=1>

< 1% match (Internet from 30-Mar-2025)

https://eprints.qut.edu.au/29724/2/Melissa_Hyde_Thesis.pdf

< 1% match (Internet from 09-Mar-2024)

<https://forthworthjournals.org/journals/index.php/IJHR/article/download/78/75>

< 1% match (publications)

[Andreas Walmsley. "Entrepreneurship in Tourism", Routledge, 2025](#)

< 1% match (Carter, Elaine Franks. "The Impact of Self-Care Agency and Compassion Satisfaction on the Professional Social Worker.", Walden University, 2020)

[Carter, Elaine Franks. "The Impact of Self-Care Agency and Compassion Satisfaction on the Professional Social Worker.", Walden University, 2020](#)

< 1% match (publications)

[Charles T. Carroll. "Six Sigma for Powerful Improvement - A Green Belt DMAIC Training System with Software Tools and a 25-Lesson Course", Productivity Press, 2019](#)

< 1% match (Coppings, Emma Joy. "Factors Influencing Parents' Decisions to Choose Chiropractic Care for Their Children at two Schools in Johannesburg, South Africa.", University of Johannesburg (South Africa), 2024)

[Coppings, Emma Joy. "Factors Influencing Parents' Decisions to Choose Chiropractic Care for Their Children at two Schools in Johannesburg, South Africa.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (Diala Kabbara. "Chapter 2 Transformative Entrepreneurship and Global Transformation", Springer Science and Business Media LLC, 2025)

[Diala Kabbara. "Chapter 2 Transformative Entrepreneurship and Global Transformation", Springer Science and Business Media LLC, 2025](#)

< 1% match (Gao, Xi. "A Comparative Study of Social Media Interaction and User Engagement Between Gen Z and Gen X.", California State University, Los Angeles)

[Gao, Xi. "A Comparative Study of Social Media Interaction and User Engagement Between Gen Z and Gen X.", California State University, Los Angeles](#)
 < 1% match (Iqbal, Md Arif. "Sustainable Technology Readiness of Apparel Professionals in Bangladesh", The University of North Carolina at Greensboro, 2023)
[Iqbal, Md Arif. "Sustainable Technology Readiness of Apparel Professionals in Bangladesh", The University of North Carolina at Greensboro, 2023](#)
 < 1% match (publications)
[Klaas Sijtsma. "Never Waste a Good Crisis - Lessons Learned from Data Fraud and Questionable Research Practices", CRC Press, 2023](#)
 < 1% match (Makgalemele, Mohlomi. "Do Tax Incentives Promote Development of Small Medium Enterprises that Ultimately Yield Economic Growth", University of the Witwatersrand, Johannesburg (South Africa), 2025)
[Makgalemele, Mohlomi. "Do Tax Incentives Promote Development of Small Medium Enterprises that Ultimately Yield Economic Growth", University of the Witwatersrand, Johannesburg \(South Africa\), 2025](#)
 < 1% match (Marko Sarstedt, Erik Mooi. "Chapter 8 Principal Component and Factor Analysis", Springer Science and Business Media LLC, 2019)
[Marko Sarstedt, Erik Mooi. "Chapter 8 Principal Component and Factor Analysis", Springer Science and Business Media LLC, 2019](#)
 < 1% match (Mutyaba, John L.. "Factors that Influence PCI DSS Noncompliance by Small and Medium-Size Merchants in the Hospitality Industry", Capella University, 2023)
[Mutyaba, John L.. "Factors that Influence PCI DSS Noncompliance by Small and Medium-Size Merchants in the Hospitality Industry", Capella University, 2023](#)
 < 1% match (student papers from 05-Feb-2025)
[Submitted to Rahul Education on 2025-02-05](#)
 < 1% match (Ritu Kumari, Vinay Pal Singh. "Industry 4.0 Technologies: Managing the Future of Smart Retail", Emerald, 2024)
[Ritu Kumari, Vinay Pal Singh. "Industry 4.0 Technologies: Managing the Future of Smart Retail", Emerald, 2024](#)
 < 1% match (publications)
 Singleton, Royce A.. "Approaches to Social Research", Oxford University Press
 < 1% match (Internet from 23-Jun-2023)
<https://bura.brunel.ac.uk/bitstream/2438/26712/1/FulltextThesis.pdf>
 < 1% match (Internet from 30-Jun-2013)
<http://dspace.fsktm.um.edu.my/bitstream/1812/538/2/WT%20Thesis-%20Text.pdf>
 < 1% match (Internet from 26-Feb-2025)
<https://etd.aau.edu.et/server/api/core/bitstreams/5e7eeb5c-6bdb-4d6b-86d3-4d8b86a71bbe/content>
 < 1% match (Internet from 25-Dec-2021)
<http://liboasis.buse.ac.zw:8080/jspui/bitstream/123456789/9268/1/tore-lorraine.pdf>
 < 1% match (Internet from 18-Mar-2025)
<https://scholar.sun.ac.za/server/api/core/bitstreams/e27d94b5-ac40-4fed-be97-21df7771a621/content>
 < 1% match (Internet from 06-Dec-2012)
http://westminsterresearch.wmin.ac.uk/9505/1/Owiti_KAKUMU.pdf
 < 1% match (Internet from 09-Oct-2023)
<https://www.ijser.org/researchpaper/Impact-of-digital-co-creation-on-brand-equity-with-special-reference-to-IT-Industry.pdf>
 < 1% match ("Quality Spine Care", Springer Science and Business Media LLC, 2019)
["Quality Spine Care", Springer Science and Business Media LLC, 2019](#)
 < 1% match (publications)
[Allan J. Kimmel. "Psychological Foundations of Marketing - The Keys to Consumer Behavior", Routledge, 2018](#)

< 1% match (Arowosegbe, Michael Oyedele. "Exploring Cybersecurity Policy Compliance Strategies to Secure E-Government Systems", Walden University)
[Arowosegbe, Michael Oyedele. "Exploring Cybersecurity Policy Compliance Strategies to Secure E-Government Systems", Walden University](#)

< 1% match (publications)
[Arun K. Somani, Ganesh Chandra Deka. "Big Data Analytics - Tools and Technology for Effective Planning", Routledge, 2017](#)

< 1% match (Botha, Divan Malan. "Marketing Challenges Facing South African Banks Operating in Emerging Markets", University of Johannesburg (South Africa), 2021)
[Botha, Divan Malan. "Marketing Challenges Facing South African Banks Operating in Emerging Markets", University of Johannesburg \(South Africa\), 2021](#)

< 1% match (publications)
[Bruce T. Lamont, Hermann A. Ndofor. "Entrepreneurship in Africa - Opportunities for Both Africa and Entrepreneurship Research", Routledge, 2019](#)

< 1% match (publications)
[Christian Harrison. "Leadership and Leadership Development - Critical Perspectives and Contemporary Approaches", Routledge, 2025](#)

< 1% match (French, Paul T.J.. "Moral Panic of Islamist Extremism: Elite-Engineered Fear Harming the Hierarchy of Credibility.", Liverpool John Moores University (United Kingdom), 2024)
[French, Paul T.J.. "Moral Panic of Islamist Extremism: Elite-Engineered Fear Harming the Hierarchy of Credibility.", Liverpool John Moores University \(United Kingdom\), 2024](#)

< 1% match (Hasbullah. "Developing an Instrument to Measure Industry 4.0 Readiness for Manufacturing Operations in Indonesia", Universiti Tun Hussein Onn (Malaysia), 2024)
[Hasbullah. "Developing an Instrument to Measure Industry 4.0 Readiness for Manufacturing Operations in Indonesia", Universiti Tun Hussein Onn \(Malaysia\), 2024](#)

< 1% match (Huang, Ting-Yen Tim. "Slow Tourism Experience: Scale Development and Model Testing From Tourists' Quality of Life and Health Perspectives", Indiana University, 2023)
[Huang, Ting-Yen Tim. "Slow Tourism Experience: Scale Development and Model Testing From Tourists' Quality of Life and Health Perspectives", Indiana University, 2023](#)

< 1% match (Jeffrey Mintah, Renata Thiebaut. "chapter 11 Effects of Social Media Marketing on Student-Consumers", IGI Global, 2025)
[Jeffrey Mintah, Renata Thiebaut. "chapter 11 Effects of Social Media Marketing on Student-Consumers", IGI Global, 2025](#)

< 1% match (Jisha Vijay, U. Priyanka. "chapter 22 Entrepreneurial Insights", IGI Global, 2024)
[Jisha Vijay, U. Priyanka. "chapter 22 Entrepreneurial Insights", IGI Global, 2024](#)

< 1% match (publications)
[Julie Pallant. "SPSS Survival Manual - A step by step guide to data analysis using IBM SPSS", Routledge, 2020](#)

< 1% match (publications)
[Kamil Lubiński, Magdalena Grębosz-Krawczyk. "Nostalgic Branding in the Toy Industry", Routledge, 2025](#)

< 1% match (Katende, Jonathan. "Modes of Market Entry Strategies: A South African Retail Company's Perspective on Doing Business in Nigeria", University of Johannesburg (South Africa), 2021)
[Katende, Jonathan. "Modes of Market Entry Strategies: A South African Retail Company's Perspective on Doing Business in Nigeria", University of Johannesburg \(South Africa\), 2021](#)

< 1% match (Kumalo, Thokozani Vangile. "Emotional Intelligence, Flourishing and Satisfaction with Life Among Government Employees in the Sedibeng Region", Vaal University of Technology (South Africa), 2024)

[Kumalo, Thokozani Vangile. "Emotional Intelligence, Flourishing and Satisfaction with Life Among Government Employees in the Sedibeng Region", Vaal University of Technology \(South Africa\), 2024](#)

< 1% match (publications)

[Leonie Manzke, Kevin O'Sullivan, Verena Tiefenbeck. "'Did I buy that just now?' – Investigating factors influencing the accuracy of food choice self-reports in a simulated online grocery store.", Open Science Framework, 2025](#)

< 1% match (publications)

[Lewis A. Owen, Professor Kevin T Pickering, Kevin T. Pickering. "An Introduction to Global Environmental Issues", Routledge, 2019](#)

< 1% match (publications)

McClain, Paula, Tauber, Steven. "American Government in Black and White", American Government in Black and White, 2023

< 1% match (Md Thohidul Karim, Xu Qi. "From physical to virtual store: factors that spur Bangladeshi manufacturers/retailers to introduce multi-channel retailing", Journal of Asia Business Studies, 2020)

[Md Thohidul Karim, Xu Qi. "From physical to virtual store: factors that spur Bangladeshi manufacturers/retailers to introduce multi-channel retailing", Journal of Asia Business Studies, 2020](#)

< 1% match (Mohammed A. AI Al Doghan, Nadia A. Abdelmegeed Abdelwahed, Bahadur Ali Soomro. "Attitudes and Motivations Towards Implantation of Intention Towards Exercise among Entrepreneurs: A Brain Freshness Activity", OBM Neurobiology, 2024)

[Mohammed A. AI Al Doghan, Nadia A. Abdelmegeed Abdelwahed, Bahadur Ali Soomro. "Attitudes and Motivations Towards Implantation of Intention Towards Exercise among Entrepreneurs: A Brain Freshness Activity", OBM Neurobiology, 2024](#)

< 1% match (Mustapa, Mimi Nurakmal. "A Post-adoption Framework for Malaysia Open Government Data", University of Malaya (Malaysia))

[Mustapa, Mimi Nurakmal. "A Post-adoption Framework for Malaysia Open Government Data", University of Malaya \(Malaysia\)](#)

< 1% match (Muthelo, Rudzani Glen. "An Integrated Decision-Making Model for Evaluating Public Sector Construction Bids.", University of Johannesburg (South Africa), 2024)

[Muthelo, Rudzani Glen. "An Integrated Decision-Making Model for Evaluating Public Sector Construction Bids.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (Ndhlovu, Sibongile. "A Comparative Analysis Between Generational Workforces and Organisational Change Factors.", University of Johannesburg (South Africa), 2024)

[Ndhlovu, Sibongile. "A Comparative Analysis Between Generational Workforces and Organisational Change Factors.", University of Johannesburg \(South Africa\), 2024](#)

< 1% match (Pardoe, Alycia. "PATHS: Teacher Adherence Regarding Type of Training and Years of Experience for Social Emotional Learning Programs", Walden University, 2023)

[Pardoe, Alycia. "PATHS: Teacher Adherence Regarding Type of Training and Years of Experience for Social Emotional Learning Programs", Walden University, 2023](#)

< 1% match (publications)

[Rajiv Divekar, Komal Chopra, Pravin Dange, Smita Mehendale. "Securing the Future through Sustainability, Health, Education and Technology - Proceeding for 14 International Annual Research Conference at Symbiosis Institute of Management Studies \(SIMS\), 2023", Routledge, 2025](#)

< 1% match (Rebecca Dolan, Jodie Conduit, John Fahy, Steve Goodman. "Social media engagement behaviour: a uses and gratifications perspective", Journal of Strategic Marketing, 2015)

[Rebecca Dolan, Jodie Conduit, John Fahy, Steve Goodman. "Social media engagement behaviour: a uses and gratifications perspective", Journal of Strategic Marketing, 2015](#)

< 1% match (Reineke, Kathleen. "Elementary Reading Teacher Practices after the Introduction of Computer-Based Assessments.", Notre Dame of Maryland University, 2020)
[Reineke, Kathleen. "Elementary Reading Teacher Practices after the Introduction of Computer-Based Assessments.", Notre Dame of Maryland University, 2020](#)

< 1% match (publications)
[Robbert Sanderma, Karen Morgan. "The Routledge International Handbook of Health Psychology - Global and Contemporary Issues", Routledge, 2025](#)

< 1% match (Sibisi, Mandla. "The Role of Ethnic Marketing in the Promotion of Domestic Leisure Tourism in Johannesburg", University of Johannesburg (South Africa), 2021)
[Sibisi, Mandla. "The Role of Ethnic Marketing in the Promotion of Domestic Leisure Tourism in Johannesburg", University of Johannesburg \(South Africa\), 2021](#)

< 1% match (Singh, Yuvika R.. "Consumer Expectations and Behavioural Intention in the Insurance Industry", University of Johannesburg (South Africa), 2023)
[Singh, Yuvika R.. "Consumer Expectations and Behavioural Intention in the Insurance Industry", University of Johannesburg \(South Africa\), 2023](#)

< 1% match (Sirbie, Andreea Diana. "The Impact of Consumer Insight on Social Marketing Campaigns: An Application on Antibullying Campaign.", Anadolu University (Turkey), 2024)
[Sirbie, Andreea Diana. "The Impact of Consumer Insight on Social Marketing Campaigns: An Application on Antibullying Campaign.", Anadolu University \(Turkey\), 2024](#)

< 1% match (Stephen Henderson, Samia Ferdous Hoque. "The Ethnicity Impact on Attitudes toward Country of Origin for Products with Different Involvement Levels", Journal of International Consumer Marketing, 2010)
[Stephen Henderson, Samia Ferdous Hoque. "The Ethnicity Impact on Attitudes toward Country of Origin for Products with Different Involvement Levels", Journal of International Consumer Marketing, 2010](#)

< 1% match (student papers from 26-Jul-2023)
[Submitted to Technological University Dublin on 2023-07-26](#)

< 1% match (Todd, Gayla McLaughlin. "The Influence of Organizational Support on the Turnover Intentions of Women in STEM Occupations.", Saint Leo University, 2020)
[Todd, Gayla McLaughlin. "The Influence of Organizational Support on the Turnover Intentions of Women in STEM Occupations.", Saint Leo University, 2020](#)

< 1% match (student papers from 04-Apr-2019)
[Submitted to Vels University on 2019-04-04](#)

< 1% match (Visser, Amieke. "The Influence of Lifestyle and Consumption Values on the Second-Hand Clothing Buying Behaviour of Consumers in South Africa.", University of Pretoria (South Africa))
[Visser, Amieke. "The Influence of Lifestyle and Consumption Values on the Second-Hand Clothing Buying Behaviour of Consumers in South Africa.", University of Pretoria \(South Africa\)](#)

< 1% match (Walsh, Brian. "Personal Financial Management Technology: Extending UTAUT2 to Understand the Determinants of the Acceptance and Use", Kansas State University, 2023)
[Walsh, Brian. "Personal Financial Management Technology: Extending UTAUT2 to Understand the Determinants of the Acceptance and Use", Kansas State University, 2023](#)

< 1% match (Internet from 12-May-2018)
<http://bucks.collections.crest.ac.uk/9366/1/Alshaibani%20thesis.pdf>

< 1% match (Internet from 27-Jan-2024)
<https://businessdocbox.com/Marketing/80831774-Customer-retention-in-the-residential-internet-services-market-the-case-of-thailand.html>

< 1% match (de Vos, Marethe. "Knowledge, Perception and Utilisation of Chiropractic by Competitive Western Mounted Games Horseback Riders in South Africa.", University of Johannesburg (South Africa))

[de Vos, Marethe. "Knowledge, Perception and Utilisation of Chiropractic by Competitive Western Mounted Games Horseback Riders in South Africa.", University of Johannesburg \(South Africa\)](#)

< 1% match (Internet from 21-Mar-2016)

<http://eprints.utas.edu.au/15886/1/whole-adams-2012.pdf>

< 1% match (Internet from 21-Feb-2013)

<http://etd.lib.metu.edu.tr/upload/12607347/index.pdf>

< 1% match (Internet from 20-Nov-2024)

<https://lifescifi.com/journal/index.php/RH/article/download/339/267/636>

< 1% match (Internet from 07-Jun-2024)

<https://ogma.newcastle.edu.au/vital/access%20services/Download/uon:53464/ATTACHMENT01?view=true>

< 1% match (Internet from 13-Jan-2025)

https://pure.aber.ac.uk/ws/portalfiles/portal/18341802/Baqlah_Lubna.pdf

< 1% match (Internet from 14-May-2018)

<http://repository.uwtsd.ac.uk/649/1/NGWA%20Leonard%20THESIS%20FINAL.pdf>

< 1% match (Internet from 11-Jan-2024)

<https://rest.neptune-prod.its.unimelb.edu.au/server/api/core/bitstreams/b57eb97c-dd75-5933-86b0-04b8e76a6b06/content>

< 1% match (Internet from 13-Sep-2023)

<https://www.lib.eduhk.hk/pure-data/pub/202301224.pdf>

< 1% match (Internet from 15-Oct-2019)

<https://www.yumpu.com/en/document/view/35073068/michael-conyette-grenoble-ecole-de-management>

< 1% match (Calitz, Esta. "Interpretation Of Campaign Briefs Between South African Financial Services and Advertising Agencies", University of Pretoria (South Africa), 2023)

[Calitz, Esta. "Interpretation Of Campaign Briefs Between South African Financial Services and Advertising Agencies", University of Pretoria \(South Africa\), 2023](#)

< 1% match (Erik Mooi, Marko Sarstedt. "A Concise Guide to Market Research", Springer Science and Business Media LLC, 2011)

[Erik Mooi, Marko Sarstedt. "A Concise Guide to Market Research", Springer Science and Business Media LLC, 2011](#)

< 1% match (Espinal, Delbin Octavio. "Teacher Experiences Engaging With Students During COVID-19: A Qualitative Descriptive Study.", Grand Canyon University)

[Espinal, Delbin Octavio. "Teacher Experiences Engaging With Students During COVID-19: A Qualitative Descriptive Study.", Grand Canyon University](#)

< 1% match (publications)

[Felipe Korzenny, Sindy Chapa, Betty Ann Korzenny, Erika Gianni. "Hispanic Marketing - The Evolution of the Latino Consumer", Routledge, 2024](#)

< 1% match (Hudson, Anne Valerie. "The Biology of Seabirds Utilising Fishery Waste in Shetland.", University of Glasgow (United Kingdom), 2018)

[Hudson, Anne Valerie. "The Biology of Seabirds Utilising Fishery Waste in Shetland.", University of Glasgow \(United Kingdom\), 2018](#)

< 1% match (Kundu, Suman. "Exploring the Factors Affecting the Growth of Social Commerce: A Consumer's Perspective.", MICA (Mudra Institute of Communications, Ahmedabad) (India), 2024)

[Kundu, Suman. "Exploring the Factors Affecting the Growth of Social Commerce: A Consumer's Perspective.", MICA \(Mudra Institute of Communications, Ahmedabad\) \(India\), 2024](#)

< 1% match (Matubatuba, Relebohiseng. "Determinants of Consumer Adoption of the Rea Vaya (BRT) System in Johannesburg", University of Johannesburg (South Africa), 2021)

[Matubatuba, Relebohiseng. "Determinants of Consumer Adoption of the Rea Vaya \(BRT\) System in Johannesburg", University of Johannesburg \(South Africa\), 2021](#)

< 1% match (Monareng, Katlego. "The Effects of Consumer Brand Identification on Loyalty: A Study on South African Banks", University of the Witwatersrand, Johannesburg (South Africa), 2025)
[Monareng, Katlego. "The Effects of Consumer Brand Identification on Loyalty: A Study on South African Banks", University of the Witwatersrand, Johannesburg \(South Africa\), 2025](#)
 < 1% match (publications)
[Soorena Merat, Wahab Almuhtadi. "Social Cyber Engineering and Advanced Security Algorithms", CRC Press, 2025](#)
 < 1% match (publications)
[Toralf James MacCulloch Grande, E. F. Haghish, Nikolai Olavi Czajkowski, Ragnhild Bang Nes. "Teens and Truth-Telling: Mental Health and Well-Being Indicators of Self-Reported Dishonesty in Surveys", PsyArXiv, 2025](#)
 < 1% match (Treurnicht, Francisca Arabelle. "Consumers' Motives for Complaint Behavioural Intentions Following In-Store Service Failures in the Clothing Retail Context", University of Pretoria (South Africa), 2023)
[Treurnicht, Francisca Arabelle. "Consumers' Motives for Complaint Behavioural Intentions Following In-Store Service Failures in the Clothing Retail Context", University of Pretoria \(South Africa\), 2023](#)
 < 1% match (Upton, Michelle. "Reshoring UK-Based Automotive Manufacturing Supply Chains: The Underpinning Motivational Framework from a Multi-Case Perspective", University of Northumbria at Newcastle (United Kingdom), 2024)
[Upton, Michelle. "Reshoring UK-Based Automotive Manufacturing Supply Chains: The Underpinning Motivational Framework from a Multi-Case Perspective", University of Northumbria at Newcastle \(United Kingdom\), 2024](#)
 < 1% match ("South African Computer Science and Information Systems Research Trends", Springer Science and Business Media LLC, 2024)
["South African Computer Science and Information Systems Research Trends", Springer Science and Business Media LLC, 2024](#)
 < 1% match (publications)
[Alexander V. Laskin, Karen Freberg. "Public Relations and Strategic Communication in 2050 - Trends Shaping the Future of the Profession", Routledge, 2024](#)
 < 1% match (Alexander, Kelly. "Challenges and Opportunities: The Wal-Mart Effect in South Africa", University of the Witwatersrand, Johannesburg (South Africa), 2025)
[Alexander, Kelly. "Challenges and Opportunities: The Wal-Mart Effect in South Africa", University of the Witwatersrand, Johannesburg \(South Africa\), 2025](#)
 < 1% match (Alireza Hassani. "Providing a Model for Estimating the Success of Electronic Customer Relationship Management Systems in Industry Management", Universitat Politècnica de Valencia, 2024)
[Alireza Hassani. "Providing a Model for Estimating the Success of Electronic Customer Relationship Management Systems in Industry Management", Universitat Politècnica de Valencia, 2024](#)
 < 1% match (publications)
[Mariya Ouaisa, Mariyam Ouaisa, Zakaria Boulouard, Abhishek Kumar, Vandana Sharma, Keshav Kaushik. "Artificial Intelligence for Blockchain and Cybersecurity Powered IoT Applications", Routledge, 2024](#)
 < 1% match (publications)
 Pate, Jennifer . "Macroeconomics for Non-Majors", UAGC, 2024
 < 1% match (Pentina, Iryna. "Performance implications of multi-channel strategic decisions by incumbent retailers: The role of order of entry and degree of inter-channel coordination", Proquest, 20111108)
 Pentina, Iryna. "Performance implications of multi-channel strategic decisions by incumbent retailers: The role of order of entry and degree of inter-channel coordination", Proquest, 20111108

< 1% match (publications)

[Tanushri Banerjee, Arindam Banerjee, Dhaval Maheta, Vivek Gupta. "Business Analytics Value Chain - Text and Cases", Routledge, 2025](#)

< 1% match (de Wet, Stefanie. "Developing a Conceptual Brand Feasibility Framework for a Retail Group in South Africa", University of the Witwatersrand, Johannesburg (South Africa), 2025)

[de Wet, Stefanie. "Developing a Conceptual Brand Feasibility Framework for a Retail Group in South Africa", University of the Witwatersrand, Johannesburg \(South Africa\), 2025](#)