Mitigating Tacit Knowledge Loss in South African State-Owned Companies: HRM Approach

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Abstract: This study is an interdisciplinary research that sought to explore knowledge loss risks interdependently in relation to the knowledge management (KM) and human resource management (HRM) disciplines in South African state-owned companies (SOCs). This study highlighted the significant role of knowledge-based HRM systems, which will naturally enhance the management capacity of tacit knowledge to mitigate risks and assist SOCs to deliver on a developmental mandate, as well as ensure their survival and the economic growth of developing nations. The paper aims to explore the connection between KM and HRM practices for the effective management of enterprise tacit knowledge loss risks using the SOCs of South Africa as a case. This study is a mixed methods research project, using the exploratory sequential design as a research strategy. Data were collected qualitatively through interviews with 20 purposively nominated human resource managers, and survey data was collected randomly from 25% (145 of the 585 responses) of the workers employed in SOCs. Qualitative data were analysed thematically using Atlas.ti and Statistical data were analysed using SAS and exploratory factor analysis. The relationship between HRM and KM practices in lessening the risks inherent in tacit knowledge loss, mainly from voluntary turnover, is underdeveloped in many South African SOCs. The study established that the role of HRM in supporting KM is limited and underdeveloped in many SOCs, largely because they are lagging in key structures and knowledge-centric cultures, behaviours and HRM practices to drive the effective management of company knowledge. This study assists HRM executives and KM practitioners to develop knowledge-driven HRM practices in order to mitigate risks from the loss of tacit knowledge, whilst ensuring sustained performance in public enterprises. The study and proposed strategies seek to influence the discourse, policies, practices and theories on KM and HRM praxis in companies to mitigate the risks associated with the loss of tacit knowledge.

Keywords: Knowledge management, Human resource management practices, Knowledge risk management, Knowledge loss, State-owned enterprises, South Africa

1. Introduction

Employee turnover and mobility are serious issues facing many countries and companies of different shapes across the world (Allen and Vardaman, 2021). Within this conundrum regarding the mobility of knowledge workers lies serious tacit knowledge loss risks which threaten the survival, productivity and sustainability of many organisations (Zieba, 2020). Tacit knowledge is defined as a type of knowledge that is deeply entrenched in the minds of firm-specific employees, which includes intangible assets such as know-how and know-why forms of knowledge that are difficult to share and retain in a tangible manner without losing its value (Becerra-Fernandez and Sabherwal, 2015; Phaladi, 2022a). The loss of these firm-specific knowledge assets affects organisational performance and sustainability (Jennex, Durcikova and Ilvonen, 2022). Companies operating within the current knowledge-based competitive context have a greater reliance on tacit knowledge in the form of skills, expertise and abilities to derive a sustainable competitive advantage. Equally, employees within these companies are sources of enterprise knowledge that drive organisational performance, product development, service delivery and innovation capacity. Globally, the phenomenon of loss of enterprise tacit knowledge troubles many private and public companies across many sectors of their economies and thus, in the process, threatens their viability in the tough knowledge-based competitive economy (Singh and Gupta, 2020). State-owned companies (SOCs) in South Africa are no exception to this global phenomenon. SOCs are knowledge-intensive business companies. The Resource-Based View Theory (RBVT) of the firm considers SOCs as resource-intensive companies. Similarly, the Knowledge-Based View Theory (KBVT) regards companies operating in the current knowledge-based economy as knowledge-intensive, knowledge-creating and knowledge explorer companies (Grant, 1996).

Dalkir (2020) highlights the importance of HRM practices in mitigating tacit knowledge loss risks in the context of RBVT and KBVT. Both RBVT and KBVT emphasize the importance of employees within firms as sources of business performance and a sustainable competitive edge. KBVT views knowledge as a key driver of economic production and organizational life and places greater emphasis on firms' intangible assets (Grant, 1996). However, few empirical studies explore the HRM position and practices in tacit knowledge management to lessen knowledge loss (Phaladi, 2021). HRM practices should drive organizational efforts to facilitate and shape knowledge management behaviours and practices in order to mitigate the risks associated with tacit knowledge

loss. The study sought to address the following research questions; *what is the role of HRM in managing tacit knowledge loss in the SOCs and to what extent does it facilitate knowledge management in the SOCs; what HRM practices are currently in place to mitigate tacit knowledge loss and how effective are HRM practices in facilitating knowledge management*? The link between HRM and KM practices in mitigating tacit knowledge loss risks remains underdeveloped in theory and practice. In the South African context, there is limited research on the relationship between KM and HRM practices in mitigating knowledge loss in public sector companies.

South African state-owned companies play a crucial role in driving economic growth and positioning the country in the knowledge-based economy. However, many public sector companies face the risk of tacit knowledge loss, which is mainly caused by turnover, knowledge-unfriendly organizational cultures and structures, and a lack of retention practices. Phaladi (2022b, 2021) highlights the central role of the human resource management division in managing enterprise knowledge. HRM departments in South African SOCs are lacking in their role in managing organizational knowledge, despite being natural custodians of enterprise-specific human and knowledge assets. The lack of knowledge-oriented HRM strategies complicates the landscape of tacit knowledge loss in many publicly owned companies (Ngulube and Phaladi, 2022).

This research project explores the connection between knowledge management and human resource practices in South African SOCs to effectively manage tacit knowledge loss risks. It aims to propose knowledge-based strategies to mitigate these risks, focusing on the role of HRM in supporting enterprise knowledge risk management in state-owned companies. Key HRM practices are identified, and the effectiveness of these practices is assessed. Additionally, strategies for integrating HRM practices are recommended for the effective management of tacit knowledge loss risks in South African SOCs.

2. Literature Review

2.1 Human Resource Management and Knowledge Management

Kianto, Sáenz and Aramburu (2017) emphasize the importance of HRM practices in managing enterprise knowledge. Strategic human resource management is rooted in the resource-based view (RBV) of the firm, while the knowledge-based theory views the organization's intangible knowledge assets as drivers of sustained competitive advantage. Knowledge management involves creating, applying, sharing and retaining knowledge assets within firms, while HRM departments manage firm-specific human resources. The focus of the paper is on the specific type of workers known as knowledge workers. Knowledge workers are a unique type of human resources, totally different from any other workers largely due to their high human capital, social capital, technical skillsets, education, learning and networking capabilities (Cegarra-Navario, Garcia-Perez and Bedford, 2020). They possess valuable tacit knowledge. Gürlek (2020) and Dalkir (2020) assert that the effective management of enterprise knowledge prevents its loss and inherent risks. Durst and Zieba (2019) characterize knowledge loss risks in organizations as human knowledge risks. Gürlek (2020) agrees that enterprise knowledge is contingent on firm-specific knowledge workers, highlighting the crucial role of HRM in knowledge management processes. Additionally, EI-Farr and Hosseingholizadeh (2019) and Kianto et al. (2017) highlight knowledge-based human resource management practices that significantly impact firm performance and facilitate KM initiatives in business enterprises. However, knowledge-oriented HRM processes have not been applied in an interdisciplinary manner to the problem of enterprise tacit knowledge loss in the KM literature, particularly in the South African context (Phaladi, 2021). Human resource management divisions can formulate and implement high-performance work practices and cultures that decrease opportunities for employees to look outside organizational boundaries, thereby enhancing productivity and sustainability. However, the extent to which these practices mitigate against potential knowledge loss remains a critical question.

The retention of knowledge workers and the inherent tacit knowledge loss associated with such workers remain serious challenges in South African SOCs (Phaladi and Marutha, 2023). State-owned companies across the world are no exception to the challenges associated with the mobility of knowledge workers; an ageing workforce and a lack of retention practices (Kumar 2020), yet they remain critical drivers of economic growth and Gross Domestic Products (GDPs) in both developed and developing economies (Phaladi and Ngulube, 2022). In a South African context, SOCs are companies owned wholly or partially by the state. SOCs remain important drivers of the South African emerging economy to address perplexing socio-economic challenges. Phaladi and Ngulube (2022) argue that they are generally considered unproductive and incompetent, thus failing to deliver on their mandates and facing many challenges, including high human resource attrition rates and knowledge loss risks (Phaladi and Ngulube, 2022). Moreover, the South African economy and many sectors of this economy are heavily dependent on SOCs. Phaladi and Marutha (2023) aver that SOCs are lacking in knowledge-driven leadership at the executive level and within HRM practices and systems. Human resource turnover and its

associated knowledge loss risks will continue to threaten their survival and capacity to deliver on their developmental mandate and hamper efforts to address socio-economic problems facing the country.

2.2 Human Resource Management Practices Supporting the Management of Firm-Specific Tacit Knowledge

HRM is an important enabler for the effective implementation and management of a desired KM culture within companies (Gürlek, 2020). Khawaldeh (2020) points out that the effective management of enterprise tacit knowledge mainly hinges on employees and the management of these company-specific staff members. It is in this regard that strategies aimed at acquiring, developing, rewarding and retaining employees could serve as important provisions for the effective management of enterprise knowledge. According to Wright, Dunford and Snell (2001), the RBVT emphasises that strategic human resource management divisions within firms focus their attention on the recruitment (identification and selection), learning and development, performance management, contracting and retention of enterprise-specific human resources.

2.3 Recruitment Practices

It is a well-established fact within the existing body of knowledge that HRM plays an important role in the acquisition of the required enterprise-specific knowledge, skills and expertise through the recruitment process. Such an acquisition practice is the first critical step in developing knowledge management capabilities within firms. However, the evidence in extant literature highlights that the main problem facing human resource executives or managers is identifying, sourcing and deploying employees with such attributes (Sokolov and Zavyalova, 2020). Allen and Vardaman (2021) point out that talent retention and knowledge workers' turnover is a serious challenge facing many organizations and countries across the globe. This means that firms operating in knowledge-based competition and economies are in a perpetual recruitment process. Recruiting knowledge workers comes with its own challenges in that they are unique from any other workers, largely since they possess highly specialised human capital, as well as specialised educational and technical skills and competencies. Edvardson (2008) avers that traditional recruitment strategies or practices are not supportive of KM activities and therefore become irrelevant in recruiting the kind of knowledge worker required in knowledge-based enterprises. In response to these issues and as part of the ideal, knowledge-driven HRM practices are proposed as the alternative to traditional practices (Delery and Roumpi, 2017). The sourcing of the organisational members' competencies from external firms is the terrain of HRM recruitment practices (Dalkir, 2020). Such a position remains undisputable. Nevertheless, arguing from the KM standpoint, recruitment is more than just the sourcing of potential organisational members. At the centre of any recruitment strategy is the acquisition of the required organisational intangible knowledge resources such as knowledge, skills and competencies. Phaladi (2023) infers that recruitment practices facilitate knowledge acquisition and absorptive capacities in state-owned companies. Recruitment practice is the genesis of the direct link between HRM and KM.

2.4 Training and Development Practices

Developing firm-specific human resource capabilities is critical in knowledge-based companies as it enhances the sharing and retention of tacit knowledge between and amongst knowledge workers. It is for this reason that training and development strategies are central to any KM initiative. Within firms, HRM is the custodian of human capital development. Training and developing knowledge workers play a critical part in the development of the required firm-specific knowledge, expertise and abilities (Delery and Roumpi, 2017). This effectively means that the training of knowledge workers plays a significant role in the development of enterprise-specific knowledge, skills and other attributes. Therefore, training and development becomes an important enabler for building KM capabilities within firms. Furthermore, the literature shows that many knowledge-intensive companies spend millions on capacity development programmes by building the required human resources' knowledge, skills, abilities and other attributes expected of knowledge workers (EI-Farr and Hosseingholizadeh, 2019). HRM practices such as capacity development strategies present the right enterprise knowledge-based context for workers to apply and share knowledge (Chaita and Sibanda, 2021). As such, training and development processes are knowledge-driven and geared towards the acquisition, use and sharing of valuable firm knowledge, expertise and competencies. These practices serve to inculcate a knowledge-oriented culture, KM practices and innovation in enterprises. However, the paradox is that such investment goes to waste if employees end up leaving to go elsewhere in search of greener pastures. The knowledge loss risks become evident when such well-developed knowledge workers leave their employers (Phaladi and Ngulube, 2022). When so much of the firm's valuable knowledge is lost either through voluntary or involuntary turnover, this affects the productivity, sustainability and the morale of the remaining staff (Phaladi, 2021; Durst and Henschel, 2020).

2.5 Performance Management Practices

Performance management systems can significantly influence enterprise knowledge and human resource turnover by rewarding knowledge-driven practices. Cabrera and Cabrera (2005) suggest that performance management systems can incentivize employees to acquire, assimilate, apply and share knowledge. HRM practices, such as performance appraisal processes, can assess knowledge-based attributes and reward employees based on their contribution to organisational tacit knowledge management. Companies can use performance assessment tools to assess and reward expected knowledge-driven behaviours, with financial and non-monetary rewards potentially unleashing desired KM behaviours. Rewarding knowledge workers for their contribution to the achievement of organisational goals and their knowledge-driven behaviours and activities help build employee engagement, loyalty and commitment (Phaladi and Marutha, 2023; Toth, Heinänen and Nisula, 2020). This, in the process contribute to their long tenure within organisations and translates into retention of their knowledge and protective capacities. However, Cabrera and Cabrera (2005) caution that performance incentive mechanisms should focus on developmental assessments as opposed to critical focus assessments. These developmental evaluations encourage workers to be more innovative and creative by sharing ideas, in comparison to those who receive critical performance evaluations.

2.6 Compensation and Rewards Practices

Compensation is perhaps the most critical component in the employee retention scheme. Shafagatova and Van Looy (2020) postulate that compensation systems such as incentive and reward practices can influence the cost, pace and the results and impact of KM strategies. Broadly, rewards and incentives are employed with the purpose of motivating knowledge workers to do more in terms of reaching the set performance targets. Strategies on remuneration and rewards could develop or destroy a culture of knowledge management within firms. According to Foss, Pedersen, Fosgaard and Stea (2015), knowledge workers that are rewarded with knowledge-sharing incentives tend to be highly motivated to acquire, use and share knowledge. Such practices help to nurture employee engagement or commitment. Job engagement is critical for the retention of knowledge workers and their valuable knowledge (Toth et al., 2020). Firms use HRM approaches such as compensation and reward strategies to cultivate the desired knowledge-based activities in their human resources (EI-Farr and Hosseingholizadeh, 2019). EI-Farr and Hosseingholizadeh (2019) infer that remuneration and incentive practices have a positive influence on knowledge management processes. Additionally, Donate and Guadamillas (2015) concur that human resource practices such as compensation and rewards have a significant influence on both KM strategies, innovation capability and the overall enterprise performance. HRM strategies such as performance management, compensation, and rewards systems could be used to assess the knowledge-based attributes of knowledge workers and reward such workers in accordance with their performance contribution to firm tacit knowledge management in order to mitigate against the potential risks associated with employee turnover and inherent knowledge loss. The intention of these strategies should be about building employee loyalty or commitment, and knowledge-driven behaviours and activities (Phaladi, 2022b; Foss et al., 2015).

2.7 Organisational Structure and Culture

HRM departments in organisations are custodians of the organisational structural design. These enterprise structures play a critical facilitation role in enabling knowledge management cultures and processes (Matošková and Směšná, 2017). However, Phaladi (2022b) laments that HRM establishments within South African state-owned firms are failing in facilitating and building knowledge-driven organisational structural configurations and cultures that are knowledge-based, as well as failing to develop enterprise capabilities and resources to propel effective strategies for managing organisational tacit knowledge to prevent its loss. Regarding organisational structures, Ayatollah and Zeraatkar (2019) argue that the way in which an organisation is structurally designed could influence the success of KM strategy execution either constructively or adversely. In other words, the practice of effectively managing knowledge in organisations is much dependent on their structural configurations. Phaladi (2022b) deduces that enterprises should structure jobs and their business workflow processes with the intention of developing the requisite knowledge creation, application, use, and sharing attitudes and behaviours. Similar sentiments (Cabrera and Cabrera, 2005) are expressed in the existing literature on KM which indicates that work design, workflows and processes must be structured in a way that encourages teamwork and collaboration amongst workers; interdependencies; and cross-functional business processes and relationships. The design of the organisational structure is likely to shape knowledge-based sharing behaviours and activities either positively or negatively.

3.   Methodology

The production of scientific knowledge is largely dependent on the research strategies used in such a knowledge discovery process. The pragmatism philosophy provided the necessary guidance in the development of the research strategy underpinning this study. The study used a mixed method research approach by adopting an exploratory sequential design as the overall research strategy guiding the data collection and analysis activities. Problems regarding the management of tacit knowledge loss in this study are complex, interdisciplinary and multi-faceted in nature and scope (Phaladi and Ngulube, 2022). Therefore, the mixed methods research (MMR) methodology was the best suited to research the complex phenomenon of enterprise tacit knowledge loss and the role of HRM practices in knowledge management in terms of mitigating such knowledge risks. The underlying principle for the deployment of the MMR methodology was based on the need for the researcher of the current scientific project to generate an all-inclusive, diverse and sensible picture from different viewpoints and lenses by exploring the role of HRM in facilitating the effective management of tacit knowledge, and to mitigate against its loss in South African state-owned companies. The mixed methodology is the best-fit for investigating complex multi-faceted problems (Mertens, 2015; Creswell and Creswell, 2018). Ngulube (2019) and Phaladi (2022a) also posit the fact that problems in KM research are complex and, as such, a mixed research methodology is well-matched for exploring such difficult and multifarious phenomena that are interdisciplinary and multi-disciplinary from diverse perspectives.

The study as an exploratory sequential MMR design project, unfolded in two distinct stances, namely the qualitative part in the first stance and the survey component in the second stance (Phaladi, 2021). For the first component, the researcher qualitatively explored the phenomenon of the research through interviews with twenty purposively nominated managers in the HRM divisions in nine SOCs across five sectors of the South African economy. The research project adhered to the ethical standards in both the qualitative and quantitative research strands. Ethical considerations were maintained in both the qualitative and quantitative research phases, including attaining approval from the participating SOCs and informed consent from participants, as per Creswell and Creswell (2018). In order to maintain confidentiality in data collection and presentation, the research participants remained anonymous. Sample sizes in qualitative-oriented studies are usually smaller. According to Creswell (2014), cases ranging from 1 to 40 are adequate in qualitative research projects for scholars to develop a coherent picture of the research findings. Creswell and Creswell (2018) postulate that sample sizes in the qualitative-oriented stance in MMR projects are usually smaller compared to sample sizes in the survey stance. The sample size in the second (survey) component was larger and representative in that the questionnaire was distributed to 585 randomly selected knowledge workers in three SOCs that agreed to participate in the qualitative component. Only three SOCs out of nine that partook in the qualitative study agreed to be part of the second, quantitative component. The Likert scale questionnaire was considered a reliable instrument with a Cronbach's alpha of 0.94. The scale included five response options ranging from strongly agree to strongly disagree. A response rate of 25% (145) for the distributed instrument was achieved for the survey phase of the MMR project. Hair et al., (2014) are of the firm view that 120 responses or more are adequate for research that employs exploratory factor analysis (EFA). The qualitative data gathered in the first strand of the project was analysed thematically using Atlas.ti. The rationale behind the use of Atlas.ti was to categorize the research findings and knowledge discovered from the first phase into themes for better analysis and logical presentation, and the development of the survey instrument used in the second phase of the study. The Statistical Analysis System (SAS) was employed to analyse the numerical data collected in the second (survey) strand of the study. SAS was used to identify key variables that were critical in the development of a model on knowledge loss reduction in the main study. This article has been extracted from the bigger doctoral study which sought to develop a knowledge loss reduction model that integrated HRM and KM in the South African SOCs (Phaladi, 2021).

4.   Research Findings

Given the fact that this research project is an exploratory sequential MMR design, the findings are presented in two sequential elements, starting with the account of investigation results from the qualitative stance collected through interviews, followed by the quantitative research findings.

4.1   Qualitative Research Findings

4.1.1   *The role of HRM and its effectiveness in mitigating knowledge loss risks*

The research question explores whether there is a role played by human resource management in knowledge management for the reduction of enterprise risks associated with knowledge loss. All the participants (HR

managers) showed that they play a role in the management of the enterprises' knowledge. This expression or response was irrespective of whether or not their enterprises had a KM function. The human resource managers consider that their role is influencing and shaping certain KM behaviours. Their role in enterprise knowledge management was summed up from the actual recruitment to the retention of the firm-specific employees; capacitating employees in terms of training and development opportunities; succession management; conducting exit interviews; skills gap analysis; managing performance appraisals; facilitating enterprise-specific knowledge-friendly structures and cultures; coaching and mentoring initiatives; and establishing KM awareness. The role of HRM entails the whole process of managing talent in their respective enterprises. On the contrary, the role of HRM in developing or nurturing KM capabilities was on a very limited scale in several SOCs. Only three SOCs of the nine that participated in the enquiry had a fully dedicated KM establishments in their structural provisions, which made it easier for them to identify and manage tacit knowledge loss risks. Participants identified key HRM strategies for enhancing KM capabilities in companies such as human resource recruitment, remuneration, talent management, performance appraisal, culture management, organisational structural designs, employee retention, and capacity development.

According to the participants, these practices were at the core of HRM systems across the state-owned companies, and as such provided an enabling organisational capability for the effective management of the enterprise-specific knowledge to mitigate against its potential loss and associated risks. Likewise, it is significant to determine how and in what way these practices facilitate KM behaviours and capabilities.

4.1.2   *Recruitment process supporting KM activities*

Regarding how specific HRM recruitment strategies support KM practices and behaviours in the SOCs under study, the recruitment practice was found to be supportive of KM processes, especially in the acquisition or sourcing of the required knowledge, skills and other attributes. All twenty participants concurred that their recruitment practice was somewhat knowledge-driven in sourcing potential employees with the required knowledge and skillsets. However, the process for the execution of the recruitment strategy varied from one entity to another. For instance, four of the state-owned companies focused only on technical competencies, whilst the remaining five entities' recruitment practice was focused on technical as well as behavioural competencies. Competency-based assessment was a common tool used in all the participating state-owned companies. Regarding competency-based interviewing or assessments, the participants contend that they were able to identify skill gaps and address them through specialised capacity development plans. As such, they play a role in the knowledge development of those employees. However, on the contrary, many participants indicated that focusing on specific knowledge-behavioural competencies was a serious problem in many state-owned companies, mainly due to the lack of a common KM vocabulary and understanding. The lack of focus on specific KM attitudes and behaviours such as the ability to learn, collaborate and network was a serious challenge in many SOCs in the study. However, a few participants emphasised KM behavioural attributes in recruitment strategies for team fitness, culture fit, longevity, alignment with the organisational knowledge vision, sustainability, and a focus on efficient human resources for enterprise productivity and sustainability.

Most HR managers found their recruitment process effective in attracting candidates with knowledge-based qualities and behaviors, with 15 out of 20 participants stating that it was effective. The participants who argued that their enterprises were effective in sourcing workers with the required knowledge and skillsets ascribe such success to their focus on internal promotion or recruitment. A participant from SOC2 summarised their focus on internal recruitment as follows:

> *I think on that process we have an above-average process. We also focus on building our own timber in terms of having own people, so that as they grow…. It is a graduate program. It is an experiential program. In terms of the core function, very minimum people have exposure of what we do. Therefore, the best thing is to identify our own people and get them the exposure through some specific relevant training interventions (Participant #5, 2019).*

A majority of the public enterprises were very successful at recruiting the right employees, but not very effective in retaining them. They struggle to recruit employees of the right calibre at the right market price. This was a serious limitation in their practice because it encouraged their workers to look elsewhere, resulting in high employee attrition rates in the process. As a result, these prevailing conditions cause knowledge losses in those enterprises.

4.1.3   *Learning and development practice support for KM*

Participants identified practices supporting KM processes, including capacity development, workplace skills plans, job shadowing, staff bursaries, in-house training academies, technical skills development, on-the-job training, induction programs, coaching, mentoring, personal development, internal job promotions, graduate programs, masterclasses, and leadership development.

Given the abovementioned HRM practices, public enterprises invest in various capacity development strategies for the development of their firm-specific knowledge workers and knowledge-based assets. Therefore, it can be deduced that HRM development strategies in public enterprises are very intentional in facilitating the acquisition of knowledge and the development thereof within their processes. Public entities provided the much-needed important human capital development infrastructure and investment, hence they deliberately develop KM capabilities.

With regard to the question of the effectiveness of their training and development strategies, most participants (seventeen of twenty) argued that their strategies aimed at training and developing their knowledge workers were effective in developing current as well as future knowledge, skills and expertise sets. However, it is interesting to note that the majority of the participants did not have a measurement tool in place to assess the return on investment of such initiatives. Only three managers from one developmental finance SOC indicated that they have a measurement tool in place to measure the effectiveness of their training and development investments.

4.1.4   *Remuneration practices supporting the retention and transfer of critical knowledge*

Regarding the retention practices in place to manage the challenge of voluntary resignations or turnover and the inherent knowledge loss and risks, the data showed that a few SOCs had several retention strategies in place to mitigate employee attrition. Such strategies included staff retention policy frameworks, rewarding and recognizing employees, remuneration benefits, post-retirement retention policies, incentive schemes, tracking attrition rates, market-related salaries, exit interviews, training and development opportunities, internal appointments, retention guidelines, employee value proposition, performance management practices, enterprise culture surveys, entropy scores, and market-related salary benchmarking exercises, all of which are essential for retaining critical employees.

Whilst the aforementioned practices were mentioned as some of the common strategies in the majority of SOCs to deal with the challenges pertaining to voluntary employee turnover rates, around 40 percent of the participants alluded to the fact that they did not have retention strategies in place to arrest the challenges of turnover and the resultant knowledge loss risks. It is an interesting observation that one participant (SOC6) operating in the research and development space had much of its staff complement on fixed-term appointment contracts. The prevailing situation led to a high employee attrition rate and a subsequent massive erosion of enterprise tacit knowledge. One participant in SOC6 summarized the situation as follows:

> *Most of the contracts are limited duration contracts or fixed-term contracts. Therefore, the one thing we are putting in place is identifying core positions in the organisation, which should become permanent. Currently, these fixed-term contracts are killing the organisation and eroding organisational memory (Participant #13, 2019).*

Making this case difficult to manage was the absence of a retention strategy, which is further complicated by the lack of a funding solution to convert these fixed-term appointments into permanent employment. Effectively, high employee turnover is a normal development, which does not worry or shock the system anymore. From a KM perspective, this picture complicates the landscape of lost knowledge, thus contributing to unsustainable productivity rates and reduced knowledge protective capacities.

The effectiveness of retention strategies in South African state-owned companies was a 50-50 split, with 50% of participants stating that they were not effective in managing knowledge and shaping the necessary KM behaviors. High employee retention rates were cited as the sole reason for their effectiveness.
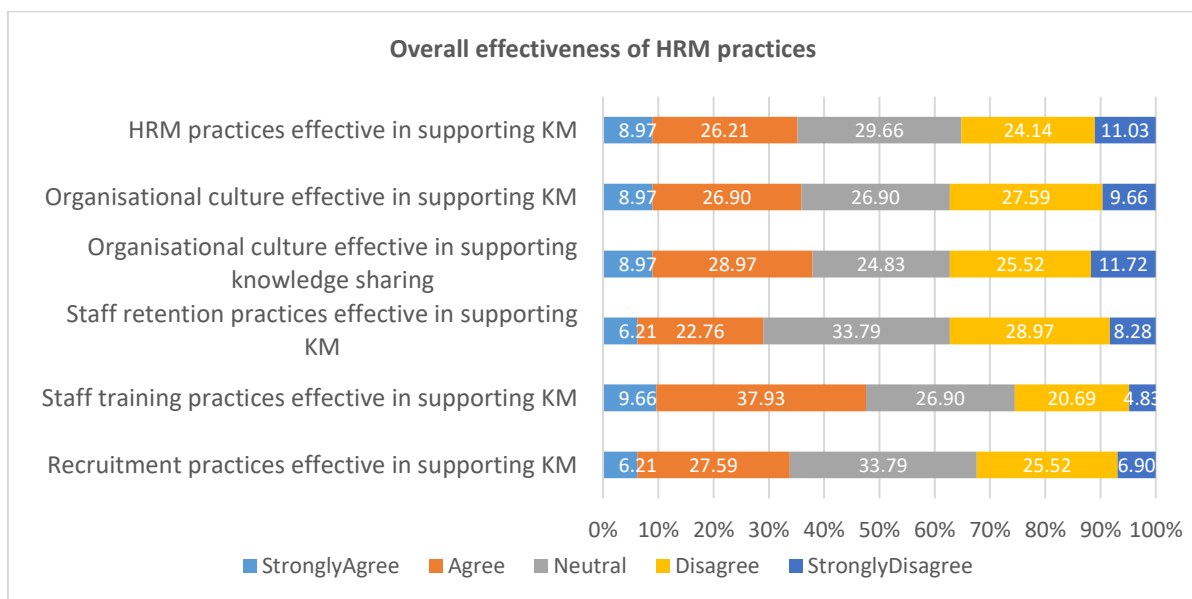
4.1.5   *Organisational structure and culture*

The data collected from the interviews with participants in the HRM establishments of these public enterprises showed that all the HR managers interviewed concurred that HRM, through its various practices, plays a central role in the effective management of enterprise knowledge, making it part of the business' life. The majority of participants inferred that the cultures of their enterprises support KM, and their role in facilitating a knowledge-

friendly organisational culture and structural provisions is inevitable. A lack of dedicated KM structures and roles remains a serious problem in the majority of South African SOCs. The data also revealed that the absence of a knowledge-friendly or knowledge-driven enterprise culture is attributed to the absence of KM functions within structures and processes. This was the case even in those three public enterprises that had a functioning KM unit. Similarly, a majority of the participants acknowledged that their practices were very successful in facilitating a knowledge-driven culture and knowledge management praxis in their organisations.

4.2 Findings of the Quantitative or Survey Research

Reactions differed insofar as recruitment strategies or systems were concerned, regarding their effectiveness in the management of and reduction of tacit knowledge loss. Figure 1 illustrates a diagrammatic representation of the responses to the survey questionnaire. As far as the responses were concerned, 34% of the respondents showed that, overall, their HRM systems were successful. Equally, 34% of the responses were neutral, not knowing whether the practices were effective. In contrast, 32% believed that their HRM practices were not that successful.

Overall effectiveness of HRM practices

Category	StronglyAgree	Agree	Neutral	Disagree	StronglyDisagree
HRM practices effective in supporting KM	8.97	26.21	29.66	24.14	11.03
Organisational culture effective in supporting KM	8.97	26.90	26.90	27.59	9.66
Organisational culture effective in supporting knowledge sharing	8.97	28.97	24.83	25.52	11.72
Staff retention practices effective in supporting KM	6.21	22.76	33.79	28.97	8.28
Staff training practices effective in supporting KM	9.66	37.93	26.90	20.69	4.83
Recruitment practices effective in supporting KM	6.21	27.59	33.79	25.52	6.90

Source: Phaladi (2021)

Figure 1: Overall effectiveness of HRM strategies

Concerning the overall success of training and development systems, many (48%) responses indicated that staff training and development practices were effective in supporting the management of the enterprise. Conversely, 25% of the respondents posited that the practice was not successful. A small noticeable share of the responses (27%) was neutral or less informed on the effectiveness of training and development systems in supporting the management of tacit knowledge to prevent its potential loss.

Pertaining to the overall success of retention strategies, the majority (37%) of respondents illustrated that their retention processes were not that effective in retaining critical people with the required competencies. The minority share of responses, at 29%, highlighted that the retention systems were not successful in facilitating or supporting the required knowledge management behaviours and practices. The data revealed a worrying reflection in that 34% were neutral about the success of the practices.

Different response reactions were noted regarding whether HRM divisions drive an enterprise culture that is effective in supporting a culture of knowledge sharing. Of the total responses received on this variable, 38% were of the view that the business culture is successful in support of a knowledge-friendly culture. In contrast, 37% of the respondents argued that HRM departments were not that effective in inculcating a knowledge-driven culture. A noticeable small share of responses at 25% were neutral, indicating that they did not know whether HRM divisions and their practices were supportive of a KM culture.

HRM functions were not successful in driving a knowledge-driven enterprise structure, with 37% stating it is not successful; whilst 36% showed that it was successful in driving a knowledge-driven structure, and 27% were neutral. Most respondents indicated that HRM strategies or systems were unsuccessful in supporting knowledge

management, while 35% believed that the practices were successful. A significant minority of 30% remained neutral on the effectiveness of HRM systems in influencing relevant knowledge management attitudes, behaviours and cultures.

5. Discussion of the Research Findings

5.1 Role of HRM in Building or Facilitating KM

The findings of this scholarly tract affirm extant literature that established the role of HRM in KM as unavoidable (Gürlek, 2020; Dalkir, 2020). Equally, the qualitative and quantitative data firmly alluded to the critical, inevitable strategic and operational partnership role of HRM in the management of the enterprise's knowledge and in facilitating KM capabilities in SOCs. All the participants in the qualitative interview process stressed the inevitable role of HRM in supporting KM initiatives in their companies. This position was supported by the survey findings in that the quantitative data revealed a need for HRM processes to drive and support knowledge management practices in the SOCs. Despite that role being inevitable, much of the quantitative data lamented the fact that HRM functions are neglecting their role. It is an established fact that KM was underdeveloped in a majority of the enterprises, largely due to the invisible role of HR managers and their practices in facilitating and nurturing KM as a management discipline to mitigate against the risks of tacit knowledge loss. However, such a role is hindered by the absence of a relationship or interface between HRM and KM. Survey findings highlighted that a lack of such a relationship is a serious burning issue that should be addressed as a matter of urgency.

In support of the existing body of knowledge on the research problem in question, the findings of the qualitative component uncovered culture management, staffing, learning and development, remuneration, rewards, retention and performance management as the potential HRM strategies that enhance KM capacities in the enterprises under study. The study findings confirmed previous research by Donate and Quadamillas (2015), establishing that KM practices are directly or indirectly shaped by HR practices and systems. The deductions on this variable exposed a strong connection between the RBV and KBV of the firms in that it was clear that the sourcing of enterprise-specific staff and knowledge and skillsets has always remained the realm of personnel management in companies. The absence of the synergy or interface between HRM and KM exhibited a serious problem in the companies under study.

5.2 Knowledge-Driven Recruitment Practices

Conventionally, the sourcing of company-specific human capital and knowledge assets to drive superior performance, innovation and sustainability has often been located within the space of personnel recruitment procedures (Jøranli 2018). As such, it presents an indispensable process for gaining access to the cutting-edge knowledge, skills and abilities existing outside the business. The majority of participants in both the qualitative and quantitative enquiry phases of the study affirmed that their recruitment practices are knowledge-driven, and they assist their entities in the sourcing of potential workers who are in possession of the required human and knowledge capital assets. However, due to the increased mobility of these knowledge workers, their recruitment practices were in a perpetual struggle to source and fill mission-critical posts in key business areas. For instance, the qualitative data obtained from participants indicated that it took them anything between six months to a full year to fill vacant posts, and in worst cases, one to two years, to source and fill vacancies in mission-critical areas of their businesses. Moreover, the articulation of certain KM behaviours in talent sourcing practices was a serious challenge in many public enterprises. A majority of the HR managers flagged the challenges that they experienced regarding their lack of focus on coaching, teamwork, networking, innovation and knowledge sharing attributes as specific knowledge management behavioural competencies. It is for this reason that the personnel sourcing practices were considered not to show knowledge-based attributes in many state-owned companies. Only three out of the nine public enterprises did indicate that the sourcing of potential candidates focused on these specific KM behavioural attributes. The fact that KM was not well-developed in a majority of the public enterprises could explain the reasoning behind the lack of focus on specific knowledge-based behavioural attributes. Therefore, it can be deduced that recruitment practices are failing to be knowledge-centric in many state-owned companies.

5.3 Knowledge-Driven Training and Development Practices

One of the main findings of the qualitative enquiry was that public enterprises took pride in being knowledge-based and learning companies. This was evident in their budgets for capacity development interventions. Investments in capacitating their employees illustrate that their practices are focused on acquiring and developing the knowledge, skills and competencies to sustain the entities. Such training and development initiatives enhance knowledge absorptive capacity. Absorptive capacity is the ability of public enterprises to

absorb or assimilate outside knowledge (Cohen and Levinthal, 1990). The study has qualitatively and quantitively shown that huge investments are made in developing human resources in state-owned companies. However, one of the key problems lies in the actual protection of the firm-specific tacit knowledge. SOCs need to invest and develop in capacities to protect their hard-earned investments in the knowledge acquired (Andersén, 2012) through training and development practices. Subjecting employees to outside sources of knowledge through these capacity development initiatives but not being in a position to retain them caused serious calamities in many of the public enterprises that participated in the study. Learning and development practices present workers and public entities with opportunities to acquire and absorb knowledge. Nonetheless, inasmuch as developing workers appears to be the right investment decision in theory and practice insofar as the sourcing and development of enterprise is concerned, this research project underscored that a lack of knowledge transfer and retention was a serious challenge in many public enterprises. Therefore, the research findings disclosed that some elements of the capacity development initiatives were, to a certain extent, knowledge-oriented in nature, but were not knowledge-driven insofar as sharing and retaining enterprise tacit knowledge.

5.4 Knowledge-Driven Retention Practices

Many public enterprises are lacking in key retention strategies to lessen knowledge loss risks. The research findings from both the qualitative and quantitative stances of the project found most public enterprises wanting when it comes to human resource retention issues. The loss of tacit knowledge, absence of retention plans and high turnover point to the ineffectiveness of retention practices in the public enterprises of the research project. Knowledge-oriented retention strategies include remuneration, rewards and incentives that are directed at retaining and protecting valuable company-specific knowledge and skillsets to mitigate against potential loss. Many retention practices in public enterprises were not in a position to help retain and support knowledge protective capacity. This was reflected as such in their remuneration and rewards mechanisms. Andersén (2012) explains knowledge protective capacity as the capacity of the company to maintain or lessen the pace of the depreciation of firm-specific knowledge assets. The existing research shows the strong connection between knowledge management and reward systems, illustrating that businesses need to provide incentives or some rewards to re-inforce and unleash the desired knowledge-driven behavioural expectations (Kianto et al., 2017). This study confirms previous studies by Allen and Vardaman (2021), which established that retaining highly skillful knowledgeable organisational members who are at the pinnacle of their productivity remains a burning issue for HR executives. The absence of knowledge-driven personnel management strategies aimed at retaining valuable organisational members will unavoidably lead to tacit knowledge loss in many cases of the study.

5.5 Knowledge-Driven Culture and Structures

KM as a management discipline to assist in lessening the risks of tacit knowledge loss is poorly established in many SOCs across the world (Kumar, 2020). In a South African context, the study established that KM is under-developed in many public enterprises (67%), largely due to the fact that they are lagging in key structures and knowledge-centric cultures, behaviours and practices to drive the effective management of company knowledge. Quantitative data obtained from the survey phase revealed that HR departments within SOCs were not very effective in driving and establishing knowledge-based structures. For organisations to be successful in sharing and retaining their mission-critical knowledge and skillsets, they will need to have a well-established structure dedicated to the effective management of enterprise knowledge and to lessen its loss. A lack of incentives and recognition to reward the workforce for their contribution to KM leads to an organisational culture that is not knowledge management-friendly. KM-unfriendly organisational cultures contribute to knowledge stickiness and negatively affect its flow within companies (Phaladi, 2022b). Furthermore, a lack of dedicated KM functions, structures and practices is complicating the landscape of lost knowledge, knowledge stickiness and retentive capacities in South African public enterprises (Phaladi and Ngulube, 2022). This study infers that HRM establishments and practices within state-owned companies are not sufficiently effective in inculcating the required KM behaviours and practices.

6. Limitations and Suggestions for Further Research

The study was restricted to nine state-owned companies in the first (qualitative) element and three SOCs in the quantitative phase. Furthermore, the project was limited to SOCs that were operating in five market sectors of the South African economy, ranging from regulatory to water utilities, the developmental finance industry, research and innovation entities and service-oriented public enterprises. It is for this reason that its findings should be used with restraint by other SOCs that were not part of the sampled entities. However, the inferences drawn on various HRM practices, roles and their capabilities in furthering the KM discipline could be used in similar South African SOCs, given the fact that such practices discussed in this paper are common in many other

companies. Similar studies could be undertaken in government departments and private companies to explore the role of HRM in managing the risks associated with tacit knowledge loss. Given the fact that knowledge risk management is emerging as a new research area, more empirical research is needed to explore the link between HRM and knowledge risk management in both public and private companies. Business enterprises across the globe are facing all manner of knowledge risks (Durst and Henschel, 2020). Hence, in order to manage these kinds of risks, interdisciplinary and multidisciplinary research is necessary for a holistic management approach. Limited research in this area, especially in African countries, is a worrying observation. Therefore, other African and non-African countries could benefit from conducting similar studies.

7.   Conclusion and Recommendations

Knowledge management is under-developed in a majority of SOCs largely because HRM executives and their practices are failing in their role of facilitating and supporting tacit knowledge management. The role of HRM and its practices is inevitable in the successful management of tacit knowledge to prevent the risks associated with its loss. Knowledge-based competition requires HR business executives to devise knowledge-driven strategies aimed at enhancing knowledge management capacity (knowledge absorptive and protective capacities) to ensure superior performance and sustained competition. The constant loss of enterprise-specific employees and their tacit knowledge in the form of knowledge, skills and expertise will adversely impact the developmental mandate of the SOCs and their performance and sustainability. Similarly, HRM establishments and executives within SOCs will be blamed for these unfortunate circumstances, largely because their role in KM is peripheral and not entrenched in the management of business knowledge. Many of the workforce recruitment practices are not considered to be knowledge-driven due to the lack of focus and inclusion of certain KM behaviours such as coaching, teamwork, networking, innovation and knowledge-sharing attributes. However, on a positive note, training and development practices were found to positively contribute to knowledge development and absorptive capacity. Many retention practices in most SOCs are not in a position to help retain workers, and are not supportive in building knowledge protective capacities. As such, they cannot be claimed to be knowledge-driven practices. Furthermore, the overall HRM practices are not effective in enabling a knowledge-friendly business culture and structural provisions that are supportive of organisational KM initiatives and practices. Human resource attrition and inherent tacit knowledge loss risks remain serious problems in a majority of the state-owned companies. Moreover, the study recommends that HRM practices need to be re-visited in order to inculcate and focus on knowledge-driven approaches, cultural fabric and knowledge-friendly enterprise structural provisioning. Furthermore, HR and knowledge managers in SOCs need to develop a close working relationship to ensure the effective management of tacit knowledge and mitigate the risks inherent in employee voluntary exit and consequential tacit knowledge loss risks. Recruitment practices should be knowledge-driven by focusing on certain KM attributes and behaviours in their talent sourcing strategies. The retention of key knowledge workers will also inevitably lead to the retention of valuable enterprise-specific knowledge assets. It is for this reason that state-owned companies should develop, refine and invest in knowledge-driven HRM approaches. The development of such knowledge-oriented practices will certainly help in fostering knowledge-friendly enterprise cultures, structures and strategies. The study presents a unique interdisciplinary approach that investigate the phenomenon of tacit knowledge loss interdependently from HRM and KM perspectives. By exploring the role of HRM practices in facilitating the management of tacit knowledge loss, this study sought to influence the discourse, praxis and theories linking HRM and KM to mitigate tacit knowledge risks in organisations. The practical implications of the study are that it can be used by HRM executives and KM practitioners to drive their investment efforts into the development of relevant knowledge-driven HRM practices to mitigate tacit knowledge risks.

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