CORPORATE TELECOMMUNICATIONS INFRASTRUCTURE AS A SERVICE PROVIDER FOR SMALL MEDIUM AND MICRO ENTERPRISES

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PREFACE

The research work reported in this mini dissertation was carried out in the Department of Economics, Quantitative Methods, Durban Institute of Technology from March 2002 to January 2003, under the supervision of Dr T N Andrew.

The studies represent original work by the author and have not otherwise been submitted in any form for any degree or diploma at any University or Technikon. Where use has been made of the work of others it is duly acknowledged in the text.

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ABSTRACT

South Africa has been classified as an upper-middle income developing country with a growth rate of 2.6%. In order to improve the quality of lives of all its citizens that includes the lowering of the unemployment rate, South Africa needs to achieve a growth rate of not less than 7%. One of the pre-requisites for economic growth is entrepreneurship.

The SMME sector has been universally accepted as having the potential for generating employment and contributing to economic growth. In South Africa the SMME sector is a major contributor to the economy. Research has revealed that SMMEs fail in the first five years of start up or stagnate in terms of development because of lack of skills, management expertise, finance and lack of basic infrastructure (such as electricity, physical premises and telecommunication). South Africa's entry into the global economy makes it imperative for businesses to have access to Information Communication Technologies regardless of the size of the business.

The de-regulation of the Telecommunication Act 106 of 1996 made provision for SMMEs to provide telecommunication access to under serviced areas. This is a double-edged opportunity for the Durban Institute of Technology (M L Sultan campus) in that, the Durban Institute of Technology (M L Sultan campus) could become a Service Provider for Telecommunications access and at the same time provide SMMEs within its vicinity with Information Communication Technology access.

This research outlines the various elements that a Higher Education Institution such as the Durban Institute of Technology (M L Sultan campus) needs to take into consideration for developing a Business Model to provide Information Communication Technologies to SMMEs within the vicinity of the Durban Institute of Technology.

A sample of the SMMEs around the Durban Institute of Technology (M L Sultan campus) was interviewed to determine their ICT needs and their understanding of the impact of access to ICT on their business. It was found, inter-alia, that many SMMEs had no access what so ever and that there was a lack of understanding of the potential impact of ICT on their enterprise.

DEDICATION

To my granddaughter, Larissa Naidu

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CHAPTER 1

INTRODUCTION AND ORIENTATION TO THE STUDY

1.1 Background to the Research Problem

South Africa's Apartheid era isolated it from trade with anti-Apartheid nations, which meant boycotts of its products, closing down of foreign owned plants and factories and the continuing loss of foreign investment capital. This resulted in the country's economic isolation and thus forced South Africa to rely on producing its own products, for example chemicals, steel, motor vehicles and a wide variety of domestic and consumer goods. If it were not for economic sanctions these goods could have been more cheaply imported from other markets. Domestic manufacturers enjoyed monopolies and they were under no immediate pressure to operate effectively or re-invest in their business (Gay, 2001).

In 1994, South Africa became part of the World Trade Organization (WTO) and the subsequent conclusion of the General Agreement of Trade and Tariffs (GATT) in 1996, meant dismantling the barriers of trade, reducing trade tariffs, increasing international trade and participation in the world economy. Many South African manufacturers were forced to liquidate because they were not able to compete in the global market place. Thousands of jobs were lost, for example the textile workers union had 200 000 members when it was formed in 1989 and by July 1999 it had 130 000 members (Gay, 2001). Businesses that survived were able to survive because of mechanization (which also contributes to job losses) and higher profits made by lower wages being paid to non-white workers.

Recent statistics reveal that the unemployment rate for South Africa is 29.4% (Statistics S A, 2002), which could potentially lead to socio-economic instability (Chandra, 2002). Unemployed people are also not able to make a contribution to the production of goods and services in the economy. This means that the economy is sacrificing much needed economic growth and development – as the economy of any country depends not so much on its buildings and factories, but on the quantity and quality of its human beings and their ability to make a meaningful and productive contribution to the economy. Unemployed persons are not

able to purchase the goods and services manufactured and provided by businesses. "There is no simple solution to South Africa's unemployment problems. It is recommended that sensible management of education and training system during the first few years of the 21st century, coupled with more impressive economic growth, will help create a situation in which the bulk of the current generation of school children will be able to find gainful employment or operate on their own account as small entrepreneurs (Roux, 2002).

Whilst the population suffers from unemployment, the Higher Education Act 101 of 1997 outlines the need for higher education institutions to become sustainable. Reduced budgets are threatening non-revenue producing departments in Higher Education institutions. There is a need to switch to a more entrepreneurial way of operating, i.e. being innovative, responsive to the market, and of finding ways to make money (Kozeracki, 1998). Decreases in funding creates entrepreneurship opportunities. This may lead to non-revenue producing departments to either close down or take on the challenge of becoming entrepreneurial and sustaining themselves. There is a pressing need for internal entrepreneurial activity within organizations.

Entrepreneurship is described as "activities undertaken by an entrepreneur who are individuals who capture the value, organize, operate and assume the risks associated with a business venture established in pursuit of an opportunity that has been identified. Entrepreneurs are a driving force of any country's economy, they represent the wealth of a nation and its potential to create employment" (Birely and Muzyka, 2000:6).

In South Africa entrepreneurship is synonymous with the development of Small Medium and Micro Enterprises (SMMEs). SMMEs are the cornerstones for growth, employment and potential success of an economy. SMMEs provide employment for over half the people formally employed in the private sector and contribute to 42% of the country's Gross Domestic Product GDP (Mbeki, 2001). They promote personal empowerment and a stable business climate. Since the adoption of the National Small Business Act (1996) and the restructuring of the sector, South Africa's small business sector is emerging as a dynamic economic force that is generating employment, creating more equitable income distribution, activating competition and exploiting niche markets locally and internationally.

As a result of the universally accepted potential of SMMEs, the Government's National Small Business Strategy (1995) and the Small Business Act (1996), clearly stipulate the objective that

SMMEs must grow and develop and join the formal economy. In order for businesses to grow and develop and operate effectively, it is vital for businesses to have the proper basic infrastructure such as a sound Telecommunication infrastructure and the necessary skills to conduct business, which is fundamental to knowledge intensive activities and business in general. The discussion paper on Universal Access and Universal Service (1998) stipulates that everyone in the country must have access to a telephone that works within a reasonable distance and at a reasonable cost. This could be either at their home, at a business or some public facility.

Telecommunications is defined as "Communication over long distances by cable, telegraphic, telephone or broadcasting" (Gerber, 1998:v) and the branch of technology which deals with the transmission, emission, or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems. The integration of computers and telecommunications networks implies for the purpose of this research that telecommunications would be referred to as two-way communication between people or computers/information communication technologies (ICTs), which include telephone, cellular technologies, telefax, e-mail and the Internet.

The communications industry is among the most innovative and rapidly growing sectors of the modern economy. Apart from this it makes a direct contribution to growth and development, and plays a key role in the fortunes of other sectors. This is because it is an important intermediary in production and the infrastructure on which the information is built

McClelland and Berendt (1998) state that Africa has one eighth of the world's population and only two per cent of telephone lines and thus Africa is regarded as a "Dark Continent" when it comes to telecommunications infrastructure. Africa's telecommunication infrastructure is relatively underdeveloped which is verified by Table 1.1, which gives an indication of the wire penetration rates for some countries in Africa. Although this Table includes business lines as well, there is no indication of the number of business lines that exist.

Although certain countries like Kenya, Botswana and South Africa are engaged in strategic development of their telecommunications, Africa in general has a long way to go in developing its telecommunications infrastructure. On the other hand, South Africa has the best telecommunications system and the highest penetration level in Sub-Saharan Africa and

it is considered on the par to most developing countries (Johnston, 1999). The whole of Africa has 12 million landline telephones of which South Africa alone has 5 million landline telephones (Diederichs, 2002).

Table 1.1 Tele-density (the number of fixed main lines per 100 people) for some African countries in 1998: Source (ITU, 2000)

South Africa	12,47
Egypt	6.02
Morocco	5.47
Algeria	4.91
Zimbabwe	1.89
Kenya	0.99
Cote d'Ivoire	1.19
Nigeria	0.38
Ghana	0.75
Mozambique	0.40
Tanzania	0.38
Sudan	0.57
Ethiopia	0.28
Madagascar	0.31
Uganda	0.28

South Africa's Telecommunications de-regulation was part of a process of the WTO on 15 February 1997. The aim of this process was the facilitation of competition among service providers, thus benefiting the consumer. Currently there is only one Telecommunications Company in the country, Telkom. Prior to 1997 the South African Government solely owned the company. In 1997, 30% of the company was sold to Thintana Communications (a consortium of SBC International Inc., and Telkom Malaysia). Telkom has a monopoly on the market of the local access, public pay phone, national long distance and international services market until 2003. A monopoly licence of five years was granted to Telkom by the government in 1997 with the objective of Telkom extending a broad-based telecommunications service and other roll out service delivery milestones that would reduce the digital divide and enhance economic development (Wainwright, 2001).

Telecommunications activities in South Africa are governed by the Telecommunications Act 103, of 1996 (the Telecomms Act), which came into full force on 1 July 1997. It made provision for a statutory regulatory body, the South African Telecommunications Regulatory Authority (SATRA) which was responsible for the regulation of all telecommunications services in South Africa excluding broadcasting. The recent Independent Communications Authority of South Africa Act 13 of 2000 (the ICASA ACT) amended the Independent Broadcasting Authority (IBA) and Telecom Acts and provided for the establishment of a joint regulatory body for both telecommunications and broadcasting. According to the ICASA Act the merger was the result of the rapid convergence of broadcasting and telecommunications. Thus ICASA now regulates telecommunications in terms of the Telecoms Act, and regulates broadcasting under the IBA as amended by the Broadcasting Act.

At the world summit in July 2001 African Leaders adopted the New Africa Initiative (NAI), which puts information and communications technology (ICT) at the forefront of continental development. The Minister of Communications in South Africa, realising the importance and dynamic nature of the ICT sector, and after intense consultative policy processes regarding the future of the telecommunications sector in South Africa, announced the latest telecommunications policy directions in July 2001. The policy directions seek to promote amongst others, foreign and local investment, effective competition, universal access, empowerment and skills development. The key areas include: -

- The introduction of technology such as fixed-mobile that will prepare the envisaged second and third network operators for competition in a free economy. Currently there is only one fixed network operator in South Africa.
- A managed liberalisation of the market structure. The current owners of private telecommunications networks will be licensed to carry public Teletraffic. It is also expected that a new frequency band will be allocated to the cellular network operators.
- The enhancement of the Universal Service Agency to facilitate the evaluation, monitoring and implementation of universal access to telecommunications.
- A tangible facilitation of the education rate through a 50% discount for public schools on all calls to an Internet service provider including connection fees.
- The economic empowerment for previously disadvantaged groups, especially women, by reserving 30% of all new licensees' shareholding for empowerment purposes.
- Consumer Protection through ICASA.

- The establishment of Public Emergency Communication Centres designated as 112 emergency centres for the promotion of health, safety and security of all persons.
- Increased focus on under-serviced areas. The promotion of SMME's as telecommunications service providers, including voice over the Internet, for universal access purposes.
- The issuing of broadband licences for purposes such as multimedia transmission or broadcast over fixed networks. (see also Andrew, 2002)

There is a tendency for financial resources to be wasted on basic telecommunications services instead of core business by users within SMMEs or business in general. High telephone expenses are one of the main problems that create high running expenses within an organisation. Telkom's monopoly perpetuates the high prices of telephone and Internet services. In the United States, most people pay low monthly fees for telephone and telecommunication services, but under the Telkom monopoly, South Africans pay per minute for telephone use, including when they are surfing the Internet, which makes the Internet prohibitively expensive for most people (Bridges, 2001/2002). In order for an organisation to have telecommunication facilities it would cost approximately:-

Set up cost per telephone station

Telephone (1 line + instrument)	:	R500
Fax	:	R2500
Internet	:	R850
Total		**R3 850**

This will increase the gap between organisations that are fully equipped technologically to enter the global competitive market easily and those that are stagnating in terms of technological progress.

Whilst the monopoly exists, there is a claim from businesses that "high phone prices, set a hurdle for the use of information and communication technologies (ICTs)" (Bridges, 2001/2002:1). This will leave South Africa's economy trailing behind the rest of the developing world. However, competition is encouraged by the licensing of the Second Network Operator (SNO), The licensing of the SNO would include provision of voice over

the Internet, fixed mobile services, public pay telephones which would be in competition with Telkom as well as other big operators in the area within which they are licensed. These operators are expected to create employment and contribute to the country's economic growth. Telkom's exclusivity period will expire in May 2003, at the latest, and it is expected that at least a second public switched telephone network (PSTN) operator will be licensed at that stage. One would thus expect competitive tariffs.

There is a need for growth in the economy. SMMEs play a vital role in creating employment and are considered growth engines for economies (Chandrasekar, 1999). Access to Telecommunications infrastructure is vital for the growth of SMMEs. It is because of the problems that SMMEs have experienced with access to a telecommunications infrastructure that this research was undertaken. If one considers that SMME environment in the immediate vicinity of the Durban Institute of Technology - M L Sultan Campus (DIT-MLST), it would be a long time before these SMMEs get a formal access to telecommunications.

This research is about investigating the feasibility of the Telephone Management Services Department of DIT-MLST Campus becoming a sustainable service provider therefore contributing to the development of SMMEs, while at the same time developing a revenue stream for DIT-MLST campus

1.2 Goals of this Research

The purpose of this research is to investigate the feasibility of corporate organizations in particular DIT that are wanting to become telecommunications service providers to SMMEs situated in the vicinity of the organization. The research will take into consideration the technological aspects such as telephone, fax, email and Internet requirements, and other aspects such as PABX management, policy issues and factors that need to be considered for sustainability. The main goals of this research will be pursued through the following sub-goals: -

- Determining the telecommunication needs of SMMEs in the vicinity of the DIT-MLST Campus.
- Establishing the telecommunication facilities that DIT-MLST Campus would need to provide such telecommunications services to the SMMEs

- The critical factors that a business model must take into account if DIT-MLST Campus is to be a sustainable telecommunications service provider to the SMME sector in its vicinity

1.3 Scope and Delimitation of this Research

This is a mini-dissertation and as such there are limitations on the work that is required. The research will be conducted within the vicinity of the DIT-MLST Campus. The research will not entail the development of a business model and the implementation and evaluation thereof. However, the research will establish the factors/elements that must be considered for developing a business model for a sustainable service provider to SMMEs in its vicinity. It must also be noted that this is a case study and while some of the issues will be generic in nature one must be careful not to arbitrarily extrapolate results to other scenarios.

1.4 Research Methodology

The key objective of this research is to establish the essential elements or issues that must be taken into consideration when developing a business model for corporate telecommunications infrastructure for owners intending to become service providers to SMMEs in their vicinity. It is not feasible, due to the scope and limitations of this research, to consider all corporate telecommunications infrastructure owners. Therefore it was decided to conduct a case study based on the environment of the DIT-MLST Campus. Chapter three expands on the issues pertaining to case study research.

1.4.1 Data Collection Plan

Although some quantitative data will be required, the overall analysis and interpretation of results will be of a qualitative nature. Data will be collected by means a of literature review, and structured interviews guided by a questionnaire. This method will cater for those that have a problem with reading and those whose first language is not English.

1.5 Importance of this Research

New Regulation has made it possible for competition, flexibility and greater access to telecommunications services. However, the difficulty in obtaining capital for SMMEs, budgetary constraints, and the relatively high costs associated with telephone services obtained from a network provider such as Telkom SA prohibits many developing SMMEs from having access to ICT services. The results produced by this research will help to pave the way for these SMMEs to have access to cost effective ICT services, thereby contributing to the economy of South Africa.

Based on the information obtained in the literature study undertaken for this research, there has been little or no research conducted on this particular aspect of SMMEs to determine the, telecommunication needs of this sector. There has also been no research carried out in developing a business model to provide a telecommunications infrastructure, specifically by higher education institutions.

The liberalisation of the telecommunications sector in South Africa has created a double-edged opportunity for the SMME sector. This means that it is now possible to have small independent telecommunications service providers, which could mean that the SMME sector in general will have greater access to telecommunications services.

This means that it is not only possible to establish an SMME within a higher education institution or to have small independent telecommunications service providers, but it could mean that the SMME sector in general can have greater access to telecommunications services. The research also takes into consideration the needs of both the informal and formal business sector.

1.6 Overview of this Thesis

The remainder of this thesis is structured as follows: -

Chapter two discusses the SMME Sector, its role in economic development and barriers to SMME development in South Africa. It also discusses Telecommunications and socio

economic development. It further discusses telecommunications in the development of the SMME Sector and the disparity of ICT services in South Africa.

Chapter three describes the methodology used. The justification of the case study methodology used, the justification of the stratified sampling technique and the justification of the choice of the instrument used in this research. This chapter also provides a brief description of the KwaZulu Natal Business Region with specific reference to eThekweni Business District. This further justifies the questions asked in the questionnaire.

Chapter four takes into account the results of the research undertaken and factors that need to be considered when determining a business model.

Chapter five concludes this mini-dissertation by showing how the goals of this research have been achieved, and points to further research areas of research.

CHAPTER 2

THE SMME SECTOR AND TELECOMMUNICATIONS SERVICES IN SOUTH AFRICA

2.1 An overview of the SMME Sector in South Africa

South Africa is classified as an upper-middle income developing country with a growth in the GDP of approximately 2.6% between 1995 and 2000 (Roux, 2000). In order to achieve a meaningful quality of life for all of its citizens, which includes lowering the unemployment rate, South Africa needs to achieve an economic growth rate of no less than 7% (Mbeki, 2001b). In order for this to be achieved, it means that the total value of goods and services produced within South Africa have to be improved. One of the key findings of the Global Entrepreneurship Monitor (GEM) indicates that "countries with lower incomes per capita tend to have higher rates of necessity entrepreneurship". The findings also reveal that within the South African context entrepreneurship is driven by poverty (Driver *et al.*, 2001:50). Thus there is a dire need for growth and development within the South African economy.

One of the prerequisites for economic growth is entrepreneurship (Neill and Viljoen, 2001). For decades, if not centuries the majority of South Africans were deprived of viable business opportunities. Policies of Apartheid denied black entrepreneurs the opportunities to realise their full potential as businessmen and businesswomen. The majority of South Africans were deprived of opportunities of ownership, education and skills, which left those that could not find jobs in the formal sector handicapped in their attempt to venture into business. The greatest challenge facing the Government is to achieve a balance between maintaining a stable growing economy and redressing inequalities of the past. As a process of Black Economic Empowerment it is important to get the previously disadvantaged communities into the mainstream economy. SMMEs play a vital role in the economy in terms of creating sustainable employment and also generating income for the majority of South Africans.

South Africa's high unemployment rate places emphasis on quality job creation not only by the Government but also the private sector. There is a need for partnership between the

private and the public sectors in order for the economy to grow and develop so that there will always be a need for services and goods produced.

Government has placed emphasis on the fundamental task of job creation and generating sustainable and equitable growth. The Reconstruction and Development Programme (RDP) of 1994 is the fundamental socio-economic policy framework of the government, which strives to address the backlogs in our society and empower the people who were victims of the past. The Growth Employment and Redistribution Strategy (GEAR) of 1996 was established to complement the RDP program with two main objectives; to transform the economy to meet the needs of the new democracy and to gear the country for a competitive world economy. Despite the programs and policies put into place, 62 000 jobs were lost in the first six months of 1997 (Cosatu, 1998). According to DTI (2002) the government introduced the Integrated Sustainable Rural Development Programme and the Urban Renewal Strategy and the Integrated Economic Action Plan in 2001 as a Microeconomic Reform Strategy in order to encourage employment and stimulate growth. These programmes aim at addressing priority microeconomic interventions over the next few years. It also outlines the structural change which is to be achieved within the economy by the year 2014 and includes:-

> high levels of growth, rapidly increasing employment, greater social and economic equity and integration, built on improved skills levels, broader ownership of productive assets, appropriate urban and rural development strategies, and improved access to basic services and infrastructure for those engaged in economic activities (DTI, 2002:8).

According to Cosatu (1998) job creation need not necessarily mean that there would be economic growth. However, this could be achieved by maintaining and expanding demand for domestically produced goods and services. Expansion of production would generate new jobs. The Government's National Strategy for Small Business (1995), places emphasis on developing the SMME sector and it has been universally accepted that SMMEs are growth engines for any economy.

2.1.1 Unpacking the term Small Medium and Micro Enterprises

According to Beaver (2002), there is no generally agreed operational or numerical definition of what constitutes a small business. The definition of SMMEs depends on the country concerned and individual institutions within them that reflect their own particular requirements. In the South African context small businesses are defined in terms of the National Small Business Act 102 of 1996 into five categories as follows:-

Survivalist Enterprises

Survivalist enterprises are enterprises that are run by owners themselves with minimal asset value. Income generated from this sector is below the income and poverty line. The main aim for people running these businesses is to provide minimal subsistence for the unemployed and their families. This sector is made up of a wide range of hawking, vending, subsistence farming, productive service and trade activities in rural and urban areas, the inner city, peri-urban, suburban and informal settlements (Peberdy, 2000). According to the National Small Business Act (1996), the survivalist sector is considered to be part of the micro-enterprise sector.

The survivalist sector constitutes approximately 23.3% of all enterprises in South Africa and contributes to approximately 3.0% of total employment. From this it is deduced that this category has great potential to absorb unskilled labour, which has been confirmed by the correlation between the unemployment rate and the amount of self-employment in unregistered, mainly survivalist enterprises that prevails in informal settlements and rural areas. The largest number of survivalist enterprises is located in KwaZulu-Natal (23%), Gauteng (21%), the Eastern Cape (17%), and the Northern Province (11%) (DTI, 1998).

Micro Enterprises

Micro-Enterprises have a turnover below the Value Added Tax registration limit (presently R300 000 per annum) and have less than 5 paid employees. These enterprises tend to lack formality in terms of registration for tax purposes, labour legislation, business premises and accounting procedures. Examples of micro enterprises are spaza shops, mini bus taxis and household industries. Micro enterprises with no employees constitute approximately 31,0% of all enterprises and make a contribution to 3.9% to private sector employment. The largest

numbers of micro enterprises are located in Gauteng (34%), Kwa-Zulu Natal (18%), Western Cape (14%) and Eastern Cape (10%) (DTI, 1998).

Very Small Enterprises

Very Small Enterprises employ less than 10 paid employees – however, in the mining, electricity, manufacturing and construction sectors, there are less than 20. They operate on the formal market and usually have access to modern technology. The smallest of these enterprises are self-employed owners with no employees, such as artisans and professionals. Very small enterprises make up an estimated 19.7% of all enterprises recorded and account for 13.3% of employment. The largest concentrations of very small enterprises are found in Gauteng (42%), the Western Cape (16%) and KwaZulu Natal (15%) (DTI. 1998).

Small Enterprises

Small enterprises comprise less than 50 paid employees and are more established, with more complex business practices than micro enterprises. Usually, the owner does not manage the enterprise directly, and a secondary co-ordinating mechanism has been put in place. Growth from a small to a medium-sized enterprise requires an accumulation of resources as well as a set of appropriate incentives for enterprise expansion. Small enterprises constitute an estimated 7,6% of all enterprises and contribute 19.9% of employment. 46% of small enterprises are located in Gauteng. A further 16% and 12% are located in Kwa Zulu Natal and the Western Cape respectively (DTI, 1998).

Medium Enterprises

Medium-sized enterprises are enterprises that have up to 100 paid employees – although in the mining, electricity and manufacturing sectors, they go up to 200. Although usually still controlled by an owner/manager, the ownership and management structure is more complex than small enterprises. The decentralisation of power to an additional management layer and a greater division of labour are the main differences between small and medium-sized enterprises. Medium-sized enterprises make up 1.4% of enterprises recorded and account for approximately 13.8% of employment. Medium-sized enterprises are concentrated in the metropolitan areas of Gauteng, KwaZulu-Natal and Western Cape (DTI, 1998).

2.1.2 The Role of SMMEs in the Economic Development of South Africa

Throughout the world one finds that SMMEs are playing a critical role in absorbing labor, penetrating new markets and generally expanding economies in creative and innovative ways. Small Businesses have a major role to play in the South African Economy in terms of employment, income generation and output growth. SMMEs account for approximately 60% of all employment in the economy and 40% of output (DTI, 1998). Given the large number of people involved in survivalist activities, this sector constitutes a vast challenge for development. Survivalist activities are also often the vehicle by which the lowest-income people in our society gain access to economic opportunities – at a time when distribution of income and wealth in South Africa is one of the most unequal in the world. In the current macroeconomic context, it is imperative that significant investment is made in SMMEs, in order to create both short-term capacity for labor absorption and output growth, as well as improve income generation and redistribution. These objectives are firmly recognised in the main development and macroeconomic strategies adopted by this government, through the RDP and GEAR programmes.

SMMEs are seen as a key to providing economic and employment opportunities to historically disadvantaged groups and helping to open the door to educational advancement. It is important for a significant investment to be made in SMMEs, if SMMEs are to address the challenges of job creation, and generating sustainable and equitable growth.

The National Strategy for Small Business (1995:5) clearly indicates that "SMMEs must be seen as part of an integrated strategy to take this economy onto a higher road – one in which our economy is diversified, productivity is enhanced, investment is stimulated and entrepreneurship flourishes". Special reference has been made in The National Strategy for Small Business Development for the development of female entrepreneurs (1995). One specific objective underlying the support framework of the national small-business policy is to facilitate equalisation of income, wealth and economic opportunities, with special emphasis on supporting the advancement of women in all business sectors.

2.1.3 Development Barriers to SMMEs

While SMMEs can be linked to substantial job creation, small enterprises are much more likely to fail within the first five years of start up, eliminating jobs from the economy. There are several reasons for this failure of SMMEs to develop and grow:-

Finance

The incentives made by the Government to enhance private and non-governmental organisations (NGOs) investment in SMMEs is inadequate. There is great concern in that previously disadvantaged individuals do not have adequate access to formal financial institutions and therefore are forced to seek relatively expensive (and often inadequate) amounts of credit from alternative financial intermediaries, sometimes illegally. Other reasons that account for the lack of access to finance include lack of collateral, bad or no credit histories, and exaggerated risk perception of previously disadvantaged borrowers, discrimination on the basis of gender and race, and the inability to afford the current high levels of interest charged. The main sources of finance for the survivalist sector are family and friends, informal moneylenders, NGOs and credits obtained from suppliers. Most survivalist enterprises have never had access to formal financial institutions. The greatest need faced by enterprises operating in the survivalist sector is for working capital to purchase supplies and inputs, often for periods of less than a week. Very little capital accumulation takes place in these enterprises, as most income is consumed by the family. As a result, survivalist enterprises have continued borrowing needs and run the risk of an excessive dependence upon sources of capital outside the business. This makes it difficult for SMMEs to grow and develop.

The Legacy of Apartheid

South Africa's Legacy of apartheid has left a large part of the population poorly educated. Lack of education means that there is a lack of basic skills especially high level technical skills, science, mathematics and engineering technology. Apartheid education and policies have also damaged some individual's self-esteem, motivation and creativity. The decades if not centuries of the majority of South Africans being deprived of viable business opportunities has resulted in the inability of black-owned or controlled small enterprises to face development. Apartheid confined the majority of the African people to homelands, which were not only the poorest in terms of living standards and business opportunities, but also

lacked a dynamic business environment. Even outside the homelands the system of apartheid made it impossible for black would-be entrepreneurs to participate in business apprenticeships and partnerships with more established non-black owned/controlled enterprises. Racially segregated residential areas, enforced through the Group Areas Act, not only uprooted millions from their places of residence and business, but also led to large capital losses and virtually destroyed the fabric of black small enterprises. Segregation increased the distance between black residential and working areas, thereby increasing the cost and risk of conducting business. Apartheid left no real space for the involvement of black women in business, marriage law reduced women to unions with no contractual capacity. The drastic curtailment of property ownership rights of blacks made it impossible for them to acquire assets that could serve as collateral for loan financing; it also excluded blacks from the long-term process of capital accrual and growth through rising property values and share prices.

Entrepreneurship Education

There was total absence of entrepreneurial education or sensitising of young people in a way that could encourage them to enter business and acquire a culture of entrepreneurship. However, the introduction of Economic and Management Sciences has been introduced in the school curriculum for Grades 8 and 9 recently as a learning area. The aim of this program is to develop knowledge and basic skills to sustain their lives, understand the economy and develop basic entrepreneurial skills needed to transform the economy which will eventually reduce the gap between the rich and the poor (Driver *et al.,* 2001).

Cultural and Social Norms

Until recently, entrepreneurship was not understood, celebrated or supported as a career choice. There is a negative mindset as well as a social stigma attached to business failure. Individuals lack confidence, initiative and creativity. There is a lack of trust in personal and business relationships. According to Wilkinson (2002), SMMEs can be created more effectively when the social environment encourages and rewards small business success. In Malaysia and China, entrepreneur stories are told to the children and successful entrepreneurs are considered as heroes, whilst in some former socialist countries, people are more uncomfortable promoting entrepreneurs as role models or as positive contributors to society.

Government Policy

Although the government has indicated its commitment to promoting small business, the administrative burden and legislative requirements are high. Labor legislation is seen as onerous for small firms as labour laws favour the employee more than the employer (Driver *et al.*, 2001)

Physical Infrastructure

Due to the past neglect of the needs of black townships and emergent enterprises, basic facilities such as water, electricity and telecommunications, which are identified by the RDP as areas deserving special attention.

The following section gives an explanation of the role of telecommunication in socio-economic development and the role of telecommunications in business.

2.2 Telecommunication and Socio-Economic Development

Whilst it could be argued that telecommunication contributes to economic development, studies have proven that the link between them is growing stronger. Cronin *et al.* (1991), conducted a detailed analysis of the US economy from 1958 to 1988, showing a direct link between telecommunications investments and the growth in the US economy. Nearly all papers and studies about telecommunications describe that technology is crucial for the development of economic and social progress in the world.

According to Ncaba (2001:46), "telecommunication offers indigenous innovation and can assist in national development." Pieters (2001:1) further stated that "access to a telecommunications medium not only serves critical sectors like education, safety and health, but also serves as a stimulant for creating new small businesses and sustainable improved productivity". Surprisingly, there is a lack of consideration for telecommunication services, which is a tool for the conveyance of information to business and society in general. Several studies have been carried out which emphasize the significant role of telecommunications in development.

An interesting study was conducted by the China Health and Nutrition Survey (CHNS) that reveals the dispersion in prices of common products, the disintegration of markets in the absence of a communication infrastructure.

Table 2.1: Prices (per kilo) of various commodities, telephone vs. no telephone (Source: Eggleston *et al.*, 2002).

Commodity	WITH TELEPHONE				WITHOUT TELEPHONE			
	Mean	Std Dev.	Highest	Lowest	Mean	Std Dev.	Highest	Lowest
Fish	6.2	1.8	9.0	6.2	6.8	2.0	14.1	5.2
Pork	5.8	0.71	7.0	4.6	6.0	2.1	8.0	3.8
Eggs	4.3	1.2	7.0	1.9	4.8	1.6	7.0	1.9
Vegetables	0.64	0.50	4.5	0.39	0.64	0.67	4.0	0.35

Table 2.1 provides data on the distribution of prices across areas in 1991 for the commonly used foods. Columns 1 through to four respectively show the means, standard deviation and highest and lowest prices recorded (in RMB Yuan) across the villages sampled in the survey. For most commodities the standard deviation are quite large relative to the means, indicating a great deal of price dispersion. The research also reveals the law of one price being severely violated (the "Law of One Price is an economic principle that holds that homogenous goods sold at different locations should be equal, net of transportation") (Eggleston *et al.*, 2002).

Hardy (1980:278-286), analysed a 'chicken and egg' correlation between telecommunications and economic growth. Hudson (1984) proposed a series of hypotheses. This was subsequently substantiated in her research and that conducted by the International Telecommunication Union (ITU) which emphasized the point that:-

- The effects of the use of telecommunications not only accrue exclusively to the users, but also accrue to society and the economy in general.
- Telecommunications permits improved cost-benefits and economic benefits for rural social service delivery.

- A certain level of organisational development and complementary infrastructure is necessary for the socio-economic benefits of telecommunications to be realised.
- The use of telecommunications can facilitate social change and improved quality of life.

According to various studies undertaken to determine the impact of telecommunications, more specifically rural telecommunications, on social and economic development, there is a much clearer understanding of the benefits of providing telecommunication access. Studies conducted by Hardy (1980,1981), based on 37 developing countries provide an empirical foundation for the belief that investments in telecommunications infrastructure lead to economic development. He also established that the causality has an interdependent characteristic in that economic development also leads to more investment in telecommunications infrastructure. Cronin *et al.* (1995:545-559), showed in a study undertaken in Pennsylvania, that there is an interdependent relationship between telecommunications investment and economic activity and growth at the national, state, and urban and rural country levels.

Whilst the argument about economic development and telecommunications exists, telecommunications has had the following benefits for society and the economy. It is a dynamic area of activity in its own right. Telecommunications underlies practically all areas of economic activity and facilitates trade. It fuels the global information society and economy which is rapidly transforming local, national and international life despite physical boundaries and promoting better understanding between people.

- Telecommunications has played a great role in development i.e. the change of lifestyle, attitudes and social and economic activities of the people in an economy.
- It has reduced the time for communication, time taken in message transfer from one place to another.
- It has encouraged social mobility. People from different parts of the world can now get together without necessarily seeing each other for developmental ideas.
- It has exposed the remote areas of the developing world to developing countries. People's attitudes are changing towards working for development rather than remaining in their traditional ways.
- The Telecommunications sector has provided employment for those who work as switchboard operators and engineers etc.

- Telecommunications has improved the standard of living.
- Communication has been made easy, cheap and effective. With mobile phones, land lines telephones and e-mail, one can reach the world at any time, at a lower cost than any forms of communication.
- With telecommunications, the globe is like a nucleus that is integrated. Point to point connections has brought mankind closer to each other (Jackson, *et al.*, 2002).

Access to information, communication and relevant technology is becoming crucial to the activities of individuals, organisations and countries. Those without the necessary skills, access and resources risk being further marginalised as the economy and society become increasingly dependent on electronic ICT systems. South Africa is a very rich country with access to very complex/advanced technology for a small minority, while the majority of the country is excluded (Benjamin *et al.*, 2000). There is a need to exploit these technologies and make it available to all citizens to improve the quality of life. There is also a need to exploit this infrastructure and make it available not only to big businesses but to those businesses in need of ICTs which would assist them in developing into effective and profitable businesses and enable them to face the challenges of the global economy.

2.3 The role of telecommunications in the development of the SMME Sector

According to the Integrated Industrial Strategy for Sustainable Employment and Growth there is evidence that sectors and countries that have experienced the most rapid diffusion of (ICTs) have also experienced the most rapid rates of employment and output growth. It is further stated that a cheap effective and technologically sophisticated telecommunications service is a pre-requisite for development of business in general (DTI, 2001).

Just like training, finance and business premises, technology is often seen as an important factor influencing the success of small enterprises, but not always accessible to them. This applies to both ends of the technology spectrum viz. sophisticated technology needed for the competitiveness of small enterprises in the modern manufacturing and service sectors, and appropriate technology for small enterprises operating in the labor-intensive, low-skills spheres. Both of these areas deserve more attention and justify some government support.

The re-engineering of businesses and technological advancement is making it imperative for businesses to adopt new technology, for example, E-business (the building of commerce around the Internet) depends on electronic mechanisms to help companies perform better, cheaper and faster. However, one must be aware of the pitfalls/disadvantages. According to Ross (2002), the fortunes of some companies who have wholeheartedly adopted E-business in the past few years have been disastrous while for many others, it is seen as the dawning of a new era of business process.

> The Internet is defined as "a computer-based network of multiple interconnected public and private networks that are connected together throughout many areas of the world. It has the potential to evolve into a significant agent of social change by impacting on all facets of our societies for example business, government, education and medicine, manufacturing, supply chain management and distribution. It has grown into a major conduit for the distribution of data and knowledge by creating many network computing environments distributed around the world. (Felleinstein, 2000:8).

South Africa being a middle-income country of Africa pays lower wages that are lower than other industrial centres of the world. As a result it holds prospects for trade with the rich western countries. ICTs have impacted on growth in the new economies especially the manufacturing services sector. There is a growing consensus that ICTs impact on productivity, which is determined by the ability of a firm to take advantage and use ICTs, which depends on availability, price and service quality of telecommunications services. SMMEs can benefit from these advantages that ICTs bring about for business in general. The introduction of technology with respect to the Internet brings about design specification, quality, logistics and supply chain. Currently the United States are making requests from the South African textile and clothing industry for specifically designed and quality garments. If the manufacturing sector of the textile and clothing industry can exploit these technologies it would give South African industries a competitive edge.

Another advantage of using the Internet is the low cost of Internet service compared with the normal telephone, for example, for the transmission of 2000 words from Ghana to Netherlands, the following cost comparison exists: -

Table 2.2: Comparison of Rates for Telephone, Fax and e-mail from Ghana to Netherlands: Source (Afemann, 1997)

TRANSPORT MEDIA	TRANSMISSION TIME	CHARGES
Telephone	10 minutes	$34
Fax	2 minutes	$7
e-mail (14400bps)	7 seconds	$0.40

The Internet and Internet commerce is growing significantly throughout global business communities which includes customers, suppliers, and organisations such as banks, government agencies, and shipping companies with whom an enterprise does business on a regular basis. It provides a transport mechanism for the mutual exchange of electronic information such as orders, invoices, shipping instructions, material specifications, engineering drawings, product catalogs, shipment status, and other product-related data. The surge in Internet use has developed the introduction of and expansion of global e-commerce environments.

Research has indicated the primary reason for growth of e-commerce is its convenience and variety, which can be of great value in our daily decision-making processes. Advantages associated with Internet and e-commerce are reduction in time-consumption for simple electronic transactions, increasing availability while providing faster telecommunications capabilities worldwide, and faster reactionary capabilities to address indicators of change in both global and local markets. Problem areas problem associated with e-commerce related to shoppers' are expectations for telecommunication speed and the lack of access for less advantaged people especially those in less developed countries. One constant challenge of e-commerce is information privacy and security, considered primary flaws in global Internet networks (Felleinstein *et al.*, 2000:1-12).

Small businesses use the Internet to increase their business reach regularly. They are creating Internet sites by deploying e-commerce and e-business services, thus enabling them to increase their visibility and find new customers. The Internet helps potential customers with information about their products, services and support in any particular region of the world. 46% of business owners in the United States feel that the Internet sites are absolutely worth the effort, time and money invested (Felleinstein *et al.*, 2000:1-12).

Electronic commerce is a phenomenon sweeping the globe – it holds enormous implications for international trade, economic development and the improvement of quality of life. Electronic commerce (e-commerce) is defined as "the transaction, pre-transaction and post-transaction set of activities that are performed by buyers and sellers through the Internet (or intranet) which embraces a changing set of technical designs, technical implementations, and advanced (reengineered) business practices" (Felleinstein *et al.*, 2000:1-12). Electronic commerce comprises functions of information exchange and commercial transactions that support and operate on telecommunication networks linking business partners (viz. business to consumer (B2C) or business-to-business (B2B) (Raymond, 2001). Presently South Africa's electronic commerce activity is undertaken in the first world sector of the economy i.e. large corporations, urban dwellers etc. Whilst the largest firms connect to the Internet and are starting to conduct business-to-business transactions very few SMMEs do. Although SMMEs in developing countries are considered important for job creation and social and economic growth. (Miller, 1999).

E-commerce brings forth technologies such as e-mail, universal messaging services, electronic bulletin boards, pervasive computing concepts, electronic funds transfer and Internet-Electronic Data Interchange. These concepts are commonly found among suppliers, customers, governmental agencies and many business environments. By combining these types of e-commerce conceptual approaches an enterprise is able to perform extremely efficient e-business administrative support activities, related to important consumer specific activities.

According to Dutta and Srivastava (2001:6), "there would be a market that would set prices and not businesses – every penny paid by a customer will bring in the expressly desired value from the product bought". It is predicted that today's product will bring in the expressly desired value from the product bought, i.e. customers will now specify the design of their product for example the colour of the exterior of the car and the colour of the interior of the car or an Onkyo stereo instead of an Kenwood (because it is common). It is expected that the customer will create two options, i.e. create what is required or find another supplier. All this will be co-ordinated through the Internet. The access and decrease in cost of all forms of telecommunications reduces the barriers to trade between countries and within countries, for example, a French firm may find it cheaper to buy parts from South Africa than from a French supplier (Cremer, 2001). However, this option of buying from another country or place for a

cheaper price will depend on various cost implications such as exchange rates, transportation, import and export duties.

2.4 The disparity of ICT services in South Africa

The South African Information technology Industry Strategy (SAITIS) is a project that was established in 1994 after the first democratic elections with an aim to bridge the local and global development gaps by the application of Information and Communication Technologies. According to this project, "the ICT sector is seen as the potential for economic growth and substantial job creation in both the developed and developing countries" (SAITIS, 2000:3).

There is evidence that the growth in Internet usage in South Africa has been remarkable compared to the rest of Africa. In terms of the 4th Annual Internet Services Industry Survey, reported by Media Africa in August 2000 it was estimated that in 1999 there were half a million new Internet users, bringing the current total users to approximately 1.82 million users out of a population of over 40 million people. While this is greater than the number of subscribers on the rest of the African continent, it only represents the average user base of a medium-sized American Internet Service Provider (ISP), and reflects less than 1% of worldwide Internet connectivity" (Langa, 2000: 3).

> Although South Africa lagged behind the rest of the world, the South African telecommunication infrastructure is sophisticated and well in advance of the rest of Africa. The fixed line network provides 11 lines per 100 people compared with only 0.5 in the rest of sub-Saharan Africa. Over 70% of the lines are connected to digital exchanges and a wide array of advanced communication services being offered (e.g. ISDN, EDI, etc). There is an extensive domestic microwave broadcasting infrastructure, international optical fibre links, satellite coverage for both broadcasting and communications, and a national Internet backbone. South Africa has been rated as one of the top twenty countries in the world for its degree in connectivity of the Internet in business and academia.

Major business sectors, the financial services and retailing sectors are making the most effective use of information technology and in several cases can be considered as world class users eg. the major banks offer a full range of on-line banking facilities throughout the country. However, the manufacturing sector and the SMME sector are clearly lagging behind. (Miller, 1999:1). The DTI (2001:35) report on the Integrated Industrial Strategy states: -

> although South Africa has this advanced fixed line system and rapid mobile system – businesses in general are not being well served by the existing structure – what South Africa needs is high levels of competition combined with an effective regulatory regime to promote high levels of investment that will serve the needs of business.

Currently South Africa's telecommunication fixed line telephony is monopolised by Telkom thus high telephone costs are reducing growth and development for SMMEs. Although Internet services have increased in South Africa, they have not readily grown to the optimum because of price structure. Currently, Telkom as the infrastructure provider has been responsible for "value added" services such as the Internet service provision (ISP). This has led to inflated costs both for infrastructure as well as access to independent Internet service providers. In America the pricing of local calls had favoured the development of the Internet (Cremer, 2001).

There are three pre-conditions for using the Internet i.e. a phone connection a computer and modem, and electricity. 70% of all Africans live in rural areas which lack power supply (Afemann, 1997). South Africa's SMME sector especially the survivalist sector (which contributes approximately 23.3% of all enterprises in South Africa) and micro-enterprise sector (which constitute 31,0% of all enterprises) (DTI, 1998), lack basic telecommunications infrastructure. This is a clear indication that only the advantaged business and people are making use of this facility. If the SMME sector delay in making use of this technology, it would mean that they would not enjoy growth and be sidelined from international/ national competitive trading and market related demands. Industries, businesses and individuals cannot ignore e-commerce, which is already on our doorstep.

2.5 The Landscape of the Telecommunications Services in South Africa

Telecommunications activities in South Africa are governed by the Telecommunications Act 103, of 1996. This Act makes provision for statutory regulation, which is now carried out by the Independent Communications Authority of South Africa (Act 13 of 2000). The Telecommunications Act 103 of 1996 also established the Universal Service Agency whose mandate is to: -

- Strive towards, and promote the goal of Universal Service (all citizens within a certain distance access to a telephone)

- Encourage, facilitate and offer guidance in respect of any scheme to provide Universal Access of service or telecommunications services as part of the Reconstruction and Development Programme
- Foster new methods of attaining Universal Service, and
- Stimulate public awareness of the benefits of telecommunications

At the world summit in July 2001 African Leaders adopted the New Africa Initiative (NAI), which puts information and communications technology (ICT) at the forefront of continental development. The Minister of Communications realising the importance and dynamic of the ICT sector, and after intense consultative policy processes regarding the future of the telecommunications sector announced the latest telecommunications policy directions in July 2001. The policy directions seek to promote amongst others, foreign and local investment, effective competition, universal access, empowerment of skills and skills development. The key areas include, inter alia: -

- A managed liberalisation of the market structure. The current owners of private telecommunications networks will be licensed to carry public teletraffic. It is also expected that a new frequency band will be allocated to the cellular network operators.
- The enhancement of the Universal Service Agency to facilitate, evaluate, monitor and implement universal access to telecommunications
- The economic empowerment of previously disadvantaged groups, especially women, by reserving 30% of all new licences' shareholding for empowerment purposes.
- Consumer Protection through the Independent Commissions Authority of South Africa (ICASA)
- Increased focus on under-serviced areas. The promotion of SMMEs as telecommunications service providers, including voice over the Internet, for universal access purposes.

Whilst the South African Government has a vision of promoting affordable communications for all citizens as well as creating a knowledge based information society, telephone costs are choking businesses and individuals. Currently South Africa has three mobile telecommunications service providers comprising the following companies: -

- Vodacom (Pty) Ltd;

- Mobile Telephone Networks (Pty) Ltd (MTN); and
- Cell C (Pty) Ltd

Although the cost of mobile communication is much higher than fixed line telecommunications, mobile communication has grown faster than fixed line telecommunications especially in rural areas where penetration of land lines is difficult because of theft of copper wires and lack of a basic infrastructure. The Apartheid era also disregarded connectivity of telecommunications services in rural areas.

Evidence from the literature study shows that SMMEs, which includes the survivalist traders, are major contributors to the economy. However, they lack the basic infrastructure and the skills to grow and develop and join the formal economy. This is despite the endeavours by the South African Government to develop the SMMEs into bigger businesses, its attempts at levelling the playing fields between Corporates and the SMME sector and attempts to stimulate and develop entrepreneurial skill and flair for its citizens.

Based on this study, it is the intention of the DIT-MLST campus to establish the possibility of a win-win situation whereby DIT provides telecommunications needs to SMMEs in its vicinity, developing its own revenue streams, at the same time it has the resources to invest in people (through activities such as training) and ultimately in the eThekweni Metropolitan Economy.

The SMME sector can benefit through development of individual skills, business skills improve and maintain their administrative and financial record keeping. Currently the SMME sector do not keep financial records such as cost price of goods purchased for resale, administrative charges, handling charges, overheads etc. which eventually contribute to the final sale price which must include profits. Currently these costs are not calculated, thus SMMEs cannot cost their goods correctly. This is one of the reasons for the lack of growth and development.

The first part of this chapter provided an overview of the SMME sector in South Africa, identifying the different categories of business within the SMME sector and its contribution to economic growth, alleviation of poverty and generating employment. The second section

discusses the barriers to entrepreneurship development in South Africa, followed by the contribution of telecommunications to economic development and business in general. This chapter concludes with a description of the state of telecommunications services in South Africa, This section has highlighted South Africa's telecommunication penetration rates, its importance to the SMME sector and the high costs that impede growth of the SMME sector and finally the doubled edged opportunity created by the liberalisation of the Telecommunications Services and the need to provide SMMEs with basic telecommunications infrastructure.

The next section outlines the methodology employed with specific reference to the case study method, the sampling technique and the instruments used to obtain the data necessary to draw up an analysis of the objective of this study, that is DIT-MLST campus becoming a telecommunications service provider.

Chapter 3

RESEARCH METHODOLOGY

The previous chapter of this study provided an overview of the SMME sector in South Africa, identifying the different categories of businesses within the SMME sector and its contribution to economic growth, alleviation of poverty and generating employment. It also provided a report on the relationship between economic development and telecommunications, and the benefits of telecommunications in general. It outlined the general state of the telecommunications services in South Africa, including telecommunications penetration rates, its importance to the SMME sector and the high costs associated with telephone calls that impede the growth of the SMME sector.

This chapter focuses on the research methodology employed in achieving the goals of this study. The case study method has been used simply because the telecommunications infrastructure of the DIT-MLST campus would be used to establish the possibility of providing SMMEs with telecommunications access within its vicinity.

The objective of this research is to establish the necessary elements that must be taken into consideration when developing a business model for an institution (in this particular case DIT-MLST campus) to become a telecommunications service provider for SMMEs in its vicinity. Given the scope and limitations of this research it was decided that a case study approach based on the DIT-MLST campus private automatic branch exchange (PABX) infrastructure be used as an example to provide SMMEs in its vicinity with telecommunications access. The following section outlines the case study methodology, and continues with a rationale for the research sampling method, the justification of the instruments used, approaches to data analysis and a detailed description of the sample used in the study.

3.1 Case Study As A Methodology

Yin (1984:23) defines case studies as an empirical enquiry that "investigates a contemporary phenomenon within its real life context, when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used. It is particularly valuable in answering who, why, and how questions in management research". According to Remenyi *et al.* (1998), a case study in business management studies is a research tactic that accommodates the complexity that is often an inherent part of the business and management research process. Case studies go directly to the core of the skills required to cope with real-life situations in modern business and is an excellent management device as it encourages the blending of action and knowledge. Case Study is action-oriented which helps participants develop confidence.

It also enables the researcher to undertake a holistic description over a period of time such as days, months, years, or decades from documents, interviews, direct observations, participant-observation, physical artefacts and archival records. Walton (1992) conducted a case study of a community, which were engaged in a social protest as it attempted to control its water resources. This protest lasted for a hundred years. Walton used diverse forms of data, such as, formal and informal interviews, census statistics, direct observation, historical documents, official records, old photographs and newspaper articles to understand how the social protest impacted on society. This is an indication of how case studies can be used as a way of making a well-informed decision.

The researcher adopted the case study method simply because the research could not take into consideration the telecommunications infrastructure of any other business. It was not possible for the researcher to undertake the research with any other businesses as it would be impractical in this instance and may infringe on the desire for such research to be undertaken within the Organisation. Furthermore, the researcher is an employee of the DIT-MLST campus Telephone Management Services department. The researcher has to her advantage, knowledge of the real situation that exists within this department with specific reference to the PABX system and the facilities it has to offer. The researcher also has direct contact with the suppliers of the PABX system who also undertake the maintenance of the system.

The research also takes into consideration, the real life situation, i.e. Corporates contributing to the social delivery program and economic development. The research also took into consideration the core skills required to cope with the real life situation for example the factors that need to be taken into consideration in developing a business model and the skills available to put the business model into practice.

According to Williams *et al.* (1988), case studies are particularly valuable when: -

- A study has to be conducted while there is an opportunity. This research is undertaken in terms of the de-regulation of the Telecommunications Act, which makes it possible for SMMEs to provide Telecommunications access. In addition, there is a particular opportunity for DIT and the SMMEs in its vicinity.
- Qualitative, descriptive information is needed to introduce the investigator to a new research situation. In order to achieve the objectives of this research the researcher undertook a literature study of the salient facts from journals, textbooks, masters and doctorate theses, and electronic means for gathering data.

Although research has argued that case studies are less desirable because nothing can be deduced from a single case study, it is too expensive and it takes too much time however, in this study the researcher found it necessary to use the case study method because it justified a real life situation where the researcher had a fair amount of exposure to the PABX System of DIT-MLST campus and the SMME environment in which the DIT-MLST campus is situated. A case study researcher is clearly closer to an experimentalist than a theorist. The case study requires the collection of empirical evidence. Business and management research involves multiple case study research, and thus uniformity of recording should be sought as this facilitates comparison between enterprises or situations, which allows the highlighting of similarities and differences. Unless there is some uniformity of recording, it is extremely difficult to see likeliness or differences, and much of the usefulness of the case study method, as well as the scientific value may be eliminated.

Case study research is often, mistakenly, thought to be rather informal because it is confused with case writing from a teaching-learning point of view. It requires a distinct formal approach and detailed master plan that specifies full particulars of the research (Remenyi *et*

al., 2000). The researcher has to work in the real world, and thus cope with real world events during the evidence-collection plan. Thus the researcher outlined a master plan with three critical questions to guide this research as follows:-

- What are the telecommunications needs of SMMEs that are within the DIT-MLST campus vicinity?
- What telecommunications infrastructure will be needed by DIT-MLST campus to provide telecommunications services to SMMEs?
- What are the critical success factors that a business model must take into account if DIT-MLST is to become a sustainable telecommunications service provider?

Case Study preparation may also involve a pilot study, which may be broader than the final study and can be a testing ground for both substantive and methodological issues, and help the researcher develop more relevant lines of questioning.

3.2 Rationale For Using A Sampling Technique

In order to achieve the objectives of the research question, the researcher needs data. Data collected from every possible group member is termed "census". However, it is impossible for the researcher to collect or analyse all the data available, owing to restrictions of time, money and often access. Empirical research requires a selection of individuals to provide information, which is called a sample. The sample forms a part of a larger group or object, which is called the target population. The sample chosen should not be significantly different to the population. The sample chosen should be a model for the population. By the use of sampling techniques the researcher is able to provide a range of methods that enables one to the amount, the kind of data and from which population the data is required. It is much easier to collect data from a sub-group rather than all possible cases.

It is important to use a sample, as it would be a manageable size and provides a valid alternative to a census when: -

- It would be impractical for the researcher to survey the entire population

- The budget constraints prevent surveying the entire population
- The time constraints prevent surveying the entire population and saves time

Data collection is more manageable as fewer people are involved. Moser and Kalton (1986), argue that sampling enables a higher overall accuracy than a census. Information collected from fewer people means that more detailed information will be collected and if people are employed to collect data (interviewers), it means that a choice of higher quality interviewers can be employed. More time can be spent to obtain data from more difficult cases. Once data has been collected proportionally more time can be devoted to checking and testing the data for accuracy prior to analysis.

According to Williams *et al.*, (1998) there is no particular need for a random sample of respondents as the basis of generalisation of the research results to a large population. There are various probability sampling techniques, simple random sampling, systematic sampling, cluster, multi-stage and stratified random sampling. Random samples are drawn from each of the strata and the aggregate forms the stratified sample.

Remenyi (1998:195) states "the overall sample size can comprise items from each stratum where the number of items from each of the strata are determined according to the relative variability of the items within each of the strata".

The researcher walked around the 500 m radius of the DIT-MLST campus to determine the kind of businesses operating within this vicinity. The walk around revealed that the following types of business operated in this vicinity: -

Fast foods/Take away
General Dealer
Clothing and linen (retail)
Clothing and linen (manufacturing)
Driving School
Motor repairs, television services
Hairdresser
Bookseller
Health products

Shoe Repairs

The researcher therefore used the stratified sampling method because of the similarity in the types of the businesses found within the vicinity of the DIT-MLST campus. The researcher drew random samples from the above subsets. Stratified random sample technique, is a modification of random sampling in which the sampling frame is divided into a number of subsets of homogeneous groups called strata prior to the sampling.

Stratified sampling ensures that the sample reflects the diversity of the population. One of the advantages of this type of sampling is that the sub-groups can be analysed and different methods of analysis can be used for different sub-groups.

3.3 Method Of Data Collection

Arising from the need for specific information relating to the provision of telephone lines to SMMEs, which is not observable or obtainable in writing or a computerised form, the researcher chose the questionnaire as the instrument to obtain the data required as well as structured interviews guided by the questionnaire. Questionnaires can be used in an experiment, case study research strategy, and is widely used as survey data collection techniques. According to de Vaus (1996) as cited in Saunders *et al.* (2000), questionnaires can be defined as "a collection of data in which each person is asked to respond to the same set of questions in a predetermined order." It includes structured interviews and telephone interviews as well as questions that can be answered without an interviewer being present. Questionnaires are not good for open-ended questions and work better with standardised questions, which can be interpreted in the same way by all respondents. Questionnaires can be used for descriptive or explanatory research, determining attitude and opinions. Explanatory and analytical research will enable you to examine and explain relationships between variables in particular cause and effect relationships. Questionnaires differ according to the way they are administered, as well as with the amount of contact the researcher has with the respondent. There are various types of questionnaires: -

- Self-administered questionnaires are where the respondent completes the questionnaire.
- Interviewer administered questionnaires are recorded by the interviewer on the basis of each respondent's answers

- Telephone questionnaires are surveys conducted on the telephone.
- Structured interviews refer to those questionnaires where interviewers physically meet respondents and ask the questions face to face. They differ from semi-structured and in-depth interviews (Saunders *et al.*, 2000).

The researcher's choice of the questionnaire was influenced by the characteristics of the SMMEs within the vicinity of the DIT-MLST campus. The questionnaires were interviewer administered with the assistance of an interpreter to ensure the reliability of the information provided by the respondent. Furthermore the majority of SMMEs within the vicinity do not have postal or electronic mail services. The literacy levels of the respondents were also taken into consideration. Interviewer-administered questionnaires usually have a higher response rate than self-administered questionnaires.

3.3.1 Justification Of Questions Used In The Research Instrument

Several SMMEs within a 500 m radius of DIT were interviewed using a structured questionnaire to determine, inter alia: -

- Whether the SMMEs have telephone/fax facilities on their business premises.
- Whether the owner/workers are aware of the benefits of the telephone/fax facility with respect to improving their business.

In determining the above points, the researcher took into consideration the number of micro-enterprises and the informal trading taking place within the vicinity of DIT-MLST campus. Most of the businesses in this sector lack access to a formal telecommunication system. The researcher also tried to establish whether the businesses interviewed were aware of the benefits of having a telephone/fax facility. Business owners, who do not use this facility, lose the benefits of good business and efficient business practice. This also prevents them from developing and growing. Telecommunications connectivity can improve social cohesion and participation in economic activity.

The next section of the questionnaire went on to determine: -

- Whether the SMMEs have a computer and Internet facilities.

- Whether the owner/workers are aware of the full potential of e-commerce transactions and information systems in assisting them in developing/expanding their business.

The next section of the questionnaire took into consideration some of the factors that inhibit SMME development within the DIT-MLST campus vicinity and whether there is a need for members of DIT to use their expertise and skill in contributing to SMME development.

- If, the SMMEs prefer guidance/training or assistance to using ICTs for business purposes

In most instances limited technical skills, lower rates of computer literacy and high cost of ICT equipment may inhibit the use ICTs. In including this question, the researcher would be able to establish whether there is a need for DIT-MLST campus to offer other services as it has the resources available for training and development which would contribute to its social responsibility in economic development of the country.

- What are the obstacles/constraints in acquiring basic ICT infrastructure?

SMMEs are faced with many constraints more especially finance, basic infrastructure, skills and literacy levels in the case of informal trading. By establishing the constraints faced by SMMEs the researcher could determine whether there is a need for cheaper and alternate telecommunications access and the need to provide alternate telecommunications facilities and make provision for such.

The following section of the questionnaire was established to determine: -

- The range of costs utilized by the SMMEs for fixed-line telephone calls, and
- The number of calls made by the SMMEs by means of a cellular phone for business.

The response to this question would aid the researcher in determining the amount of income that could be expected if services were provided for this sector. Thus DIT-MLST campus can determine the financial viability of such a business model.

In some cases where businesses do not have a fixed line especially the informal trading, they may acquire a cellular phone facility, which costs much more. In establishing this response the researcher would be able to draw conclusions whether a cheaper telecommunications alternative could be established to provide a means of communication.

Finally the researcher took into consideration the costs involved in using cellular telephones to do business. Thus the following question was asked whether SMMEs would prefer: -

- A fixed line that reduces their cellular phone costs by more than half or would they still prefer using a cellular phone or a fixed line?

The researcher further obtained data from the Strategic ICT Document for the DIT-MLST campus to determine the software capabilities of the existing PABX system. Several discussions were also held with the Technical Sales Expert of Advanced Software Technology (AST) Networks, the service providers of the DIT PABX infrastructure. The researcher undertook these interviews in order to gain technical experience and knowledge, which would assist the researcher in drawing conclusions about factors that need to be taken into consideration in establishing the business model.

This chapter discussed the researchers' justification of the research methodology used and outlines the justification of the sampling technique used and the choice of instrument used to achieving the objectives of this study. This chapter further discusses the justification of the questions asked in the questionnaire and the brief importance of these questions in relation to the study.

The next chapter will outline the analysis of the data collected, the geographic context in which DIT-MLST Campus is situated and factors that need to be considered in determining a viable business model for DIT-MLST campus in providing ICT access to SMMEs within its vicinity.

Chapter 4

RESULTS OF ANALYSIS OF THE SURVEY CARRIED OUT AND FACTORS FOR CONSIDERATION IN DEVELOPING A BUSINESS MODEL

The previous chapter detailed the justification of the research methodology, and questions used in this research study. This chapter outlines the context within which the research was carried out, an analysis of the interviews with the various categories of businesses which operate within a 500m radius of DIT, the number per category interviewed, and the number of people employed in the businesses within each category is also reflected. This chapter further outlines the analysis of the results of the research study that indicate the number of businesses which have a telephone line and Internet facility, the number of businesses that use Internet facility or computers to conduct business and the number of businesses that use cellular phones to conduct business.

4.1 The Geographical/Economic Context Of This Research

The Durban Institute of Technology is situated near the Warwick Triangle of the eThekweni Unicity Council in KwaZulu Natal, which is a busy trading area in the city's Central Business District (CBD) where 5 000 legal stall-holders and mobile vendors ply their trade. This is a central commuting point for more than 400 000 people commuting on trains, buses and taxis (Biles, 1999).

The eThekweni Unicity Council has a large and diversified economy with strong manufacturing, tourism, transportation, finance and government sectors. Its coastal location and large port gives it a comparative advantage over many other centres in South Africa for export-related industry. However, there has been little growth in the number of jobs provided by eThekweni formal sector over the past 20 years. The manufacturing sector, which is second only to the government in the number of jobs provided, has been shedding jobs as firms restructure and become more capital intensive. Despite a dynamic and growing small

and micro business sector, the eThekweni Council has very high rates of unemployment, reaching over 30% in some areas of the city (Durban Metro, 1999).

The eThekweni Metropolitan area is the main economic driver in KwaZulu Natal, contributing to more than half of the province's output, employment and income. Nationally, eThekweni is the second most important metropolitan area after Gauteng, accounting for 15% of national output, 14% of household income and 11% of national employment (Durban Metro, 1999). eThekweni is linked to the north with Richards Bay and to the west with Pietermaritzburg and Johannesburg.

The inability of the formal sector of the economy to provide sufficient employment opportunities for E-Thekweni's growing population has led to the development of a fast growing informal sector. Very few people in the informal sector appear to be involved in manufacturing activities. Most people provide services for low pay (such as domestic work) followed by trading, catering and accommodation. It is expected that future growth will occur in the trading sector. There are some 20 000 street traders in eThekweni (Durban Metro, 1999). These traders lack basic infrastructure such as telecommunication, electricity and physical infrastructure.

The accessibility of eThekweni, more especially Warwick Avenue Junction and the strong existence of commuters implies that entrepreneurial activity can flourish, that there will be a demand for goods and services within this vicinity. From the geographical context within which the DIT is situated it is evident that there is a need for development. The provision of a basic infrastructure, which is necessary for trade such as physical premises, electricity, and telecommunications, is sadly lacking within the 500 m radius of DIT. If development is initiated it will automatically improve employment opportunities and socially uplift the community in this vicinity which will ultimately have economic payoffs.

4.2 Summary Of Results Of The Survey

In planning the survey it became apparent that as one moves away from DIT-MLST campus there is a greater presence of small to medium enterprises. Micro-enterprises and survivalist enterprises seem to occupy the immediate vicinity of DIT-MLST campus.

Table 4.1 illustrates the sample of the various categories of SMMEs that were interviewed, the categories of businesses, the number of businesses per category interviewed and the spread of the number of people in the businesses within each category. The sample selected comprises both the formal and informal sector around the DIT-MLST campus vicinity.

Table 4. 1: Profile of SMMEs that were interviewed within a 500m radius

Categories of Business	**Number Interviewed**	**Number of persons Operating the business**
Fast foods/Take away	9	1; 2; 2; 2; 5; 1; 5; 5; 8
General Dealer	6	3; 3; 5; 5; 8; 20
Clothing and linen (retail)	3	2; 6; 8
Clothing and linen (manufacturing)	2	16; 25
Driving Schools	4	2; 3; 3; 4
Motor repairs, television service	3	2; 3; 6
Hairdresser	2	1; 2
Bookseller	1	2
Health products	1	5
Shoe repairs	1	2
Total no. Of SMMEs interviewed	**32**	

Table 4.1 illustrates the diversity of the kind of businesses that operate within the 500 m radius of DIT-MLST campus. It also reflects the concentration of fast food businesses. Of the 32 SMMEs that were interviewed eight of the SMMEs provide employment for more than five people. Five out of the 32 businesses sampled provide employment for five people and 18 businesses provide employment for four or less than four people. This illustrates the slow growth rate of the businesses in providing employment.

Table 4.2 illustrates the profile of the various categories of businesses, the spread of the number of businesses interviewed in each category, the number of businesses that have a telephone line, number using Internet facilities and the number that use the Internet and computer for business and administration. The table also indicates the number of businesses that use cellular telephones in business.

From Table 4.2 it is apparent that fast-food/takeaways dominate trade within the 500 m radius of the DIT-MLST campus. There is a clear indication of the lack of telephone facilities within this sample and the greatest number of requests for guidance and training from this category of business. However, the formal businesses operating within this radius are very limited. Table 4.2 also illustrates that the clothing and linen-manufacturing sector have the

most number of employees and also have access to ICTs. There is a clear indication that medium or bigger businesses have access to ICT

Table 4.2: Profile of the various categories of business and their use of ICT services

Categories of Business	Total Inter-viewed	No With Tele-Phones	No With Internet	No using Internet and Computers for Business Administration	No Require Guidance And Training	No using Cellular Phones in Business
Fast Food/Takeaway	9	1	0	0	9	4
General Dealers	6	5	0	0	4	3
Clothing and Linen (Retail)	3	3	0	0	2	2
Clothing & Linen (Manufacturing)	2	2	2	1	1	1
Driving Schools	4	0	0	0	3	4
Motor Repairs	3	2	0	0	3	3
Hairdresser	2	0	0	0	2	2
Bookseller	1	1	0	1	0	0
Health Products	1	1	1	1	0	1
Shoe Repairs	1	0	0	0	1	0

Several studies have concluded that ICTs are used by the more developed or more established business (see DTI, 2001). This research further illustrates that the digital divide still exists and only the rich have access to ICTs.

Of the 32 SMMEs interviewed, only one of them had access to an ICT infrastructure (such as the Internet) beyond the basic telephone/fax or in some cases a computer that is used for routine office management. There were 17 SMMEs that did not have Plain Old Telephone Service (POTS) and relied on their mobile telephones for business operations. Three main reasons were cited for the lack of adequate ICT infrastructure: -

- The lack of knowledge/training with respect to ICT and business development. There were 25 respondents, who indicated that they needed training regarding the impact of ICT on their business.
- They lack official fixed physical space or business premises.
- The difficulty in obtaining financial capital to purchase appropriate ICT infrastructure

The reasons cited for not having ICT coincide with the literature study, which was conducted. that: -

- There has been evidence that there is a lack of skills within the South African labour force.

- Basic infrastructure such as electricity and physical premises is a pre-requisite for ICTs.
- That SMMEs cannot sustain themselves because of financial constraints
- High telephone costs in South Africa inhibit the use of ICTs

From the literature study it was revealed that the cost of telecommunications and Internet service provider costs vary across countries for example 6 hours of usage per month would cost approximately in Russia R386, R59 in Malaysia and R218 in South Africa. In some countries like Mexico and the United States, local calls are not charged for and only Internet access has to be paid for (Timmers, 1999). This widens the gap between the information rich and the information poor.

Three respondents mentioned that they did not need nor saw the relevance of ICT in their business, and therefore were not interested in ICT training. However, one must note that the pertinent questions also revealed that these respondents had little or no exposure to ICT in general. Therefore one wonders how they are able to declare that ICT has no relevance in their business operations without any knowledge or exposure to ICT in general.

This is an indication that there is a lack of awareness and understanding of the opportunities and implications that ICTs hold for business. Studies undertaken to determine the barriers to e-commerce in the United States have concluded that that there is a lack of qualified personnel in this field. SMMEs in Europe were concerned about the complexity of electronic commerce (Timmers, 1999). A survey conducted among 223 small businesses in Canada revealed that businesses get their information from friends, family and sales agents. It also revealed that they did not believe that they required new information (Fuchs, 1997). Generally SMMEs seem to be content to relying on grapevine information from family and friends. (Bourgouin, 2002).

It also appears that there is hesitation to commit to or rethink how SMMEs could use ICT to conduct and improve their businesses.

The original intention of this research was to investigate the possibility of using the DIT-MLST campus telecommunications infrastructure to provide only a plain old telephone service (POTS) only service to SMMEs in its vicinity as part of income generation for the

department that manages the ICT infrastructure within DIT-MLST campus. However, as the research unfolded, it became increasingly evident through the literature study, discussions with experts in the field, and the results of the survey that the potential scope for income generation lies not only in the provision of access to the hard telecommunications infrastructure at DIT, but in the value added services that goes beyond this access.

If DIT-MLST campus has to contribute to the economic and social development in its vicinity and develop a revenue stream by providing telecommunication access, then DIT-MLST campus must utilize its available resources to create awareness and develop capacity to use such technology. From the results of the analysis of the research, there is evidence of the digital divide even in urban areas such as the geographic context within which DIT-MLST campus is situated. This is despite the Department of Communications initiative towards universal access and the Governments endeavours in creating an information based society. In order for DIT-MLST campus to attempt to bridge the digital divide it needs to consider various ways of creating access and providing a range of services.

The results of the survey indicate that there are far more business opportunities for the DIT-MLST campus ICT services department than that of just providing basic telecommunications access. In fact a combination of providing telecommunications access, telecommunications technology and training and development initiatives must be considered at the same time to spur development and develop a revenue stream for the department handling the ICT services at DIT-MLST campus

The following section takes into consideration the range of ICT services that DIT-MLST campus can make available to SMMEs, which are essential for business development.

4.3 Range Of Services That Could Be Provided By DIT To SMMEs

There is a range of services that one can support with respect to ICT, such as voice/fax only, Internet services, and access to business information systems. In addition to these services, as the analysis of the survey indicates, DIT-MLST campus must consider both access to the SMME at the premises of the SMME, and the feasibility of providing a telecentre facility at DIT-MLST campus for those that do not have any fixed business premises.

From the analysis of the results of the survey, it was revealed that 17 out of the population sample of 32 SMMEs did not have a fixed line telephone. This creates an opportunity for DIT to offer the following services.

4.3.1 Fixed Line Telephony

This service can be offered by using the DIT-MLST campus PABX infrastructure. The fixed line could also be used for the use of Internet and faxing.

Internet

Internet also provides e-mail capability, which reduces time and cost in communication. In addition, the Internet is an invaluable source of information for the development of SMMEs.

Facsimile

Facsimile provides useful alternative means of communication where access is not available or is not practical. This facility also reduces the time and cost in communication.

4.3.2 Wireless Technology

For those SMMEs that lack physical infrastructure such as physical premises and electricity, wireless telephony such as digitally enhanced cordless telephony (DECT) and wireless local loop (WLL) systems may be provided. Wireless and Internet Protocol (IP) based technologies are being used around the globe to provide communication access to rural communities or under serviced areas and are gaining popularity (Achterberg, 2000).

The same idea could be applied to the DIT-MLST campus and some of the SMMEs situated around it, although the vicinity around DIT-MLST campus is not demarcated an under serviced or rural area. The 500m radius around DIT-MLST campus in which the sample was selected is definitely an under serviced area. One of the main characteristics of DECT is that the technology is not affected by copper theft, it is quick to deploy, flexible for emerging markets and perfect for unanticipated demand within an area covered. (Achterberg, 2000).

4.3.3 Access To Business Information Systems

There is no need to have sophisticated dedicated business information systems to conduct businesses. Spreadsheets or accounting packages could be tailored or made up to suit the needs of the various SMMEs. Packages can be developed for purchases per week and sales per week. These packages would include income and any expenses incurred during the week. This data can be captured daily to keep track of information. At the end of the week the entrepreneur would be able to assess his/her profits or losses. He/she can then seek the assistance and guidance he needs from DIT-MLST campus in order to make strategic decisions about the business in order to ensure profitability and sustainability.

The provision of ICT services by the DIT-MLST campus to SMMEs will have a knock on effect on business. Access to the Internet will lead to conducting business through e-commerce. E-commerce offers a wide range of business opportunities through networking, interactivity and multi-media. SMMEs can improve their business administration, maintain computerized records, conduct on-line marketing, ordering, payment and support for delivery, and ultimately attain higher productivity and profits. This will impact on the development of skills, knowledge and literacy levels.

4.3.4 The Provision Of A Telecenter

Should SMMEs hesitate to invest in ICT development as a result of financial constraints, lack of basic infrastructure, knowledge or skills, and then DIT can offer an alternative. It can introduce ICT access to SMMEs, by providing a telecentre. A telecentre can be defined as "a physical space that provides public access to ICTs for educational, personal, social and economic development. It is designed to provide a combination of ICT services ranging from basic telephone or e-mail services to full Internet/world wide web connectivity" (Harris, 1999:1). It could also be referred to as a centre to provide public access to advanced IT and telecommunications equipment, together with a degree of support and training and a range of information-based services (Conradie, 1998). According to the World Bank (1999) reports cited in Harris (2001): -

- All developing countries in the world own a mere 4% of the world's computers. 75% of the world's 700 million telephone sets can be found in the nine richest countries

- There are more web hosts in New York than in continental Africa, more hosts in Finland than in Latin America and the Caribbean combined
- Tokyo also has more telephones than the entire African continent
- There were 1 million Internet subscribers on the entire African continent in 1999 compared with 15 million in the United Kingdom

Based on the disparity of the diffusion of ICTs between developing and developed countries and given that the vast majority of the world's population residing in developing countries, telecentres can be seen as playing a pivotal role in the achievement of ICT diffusion and the subsequent economic payoffs. The Universal Service Agency (USA) in South Africa in response to the universal access strategy has committed itself to developing a model for providing sustainable telecommunications and other information services to the disadvantaged South African communities. This is being achieved through Multi-Purpose Community Centres (MPCC), Community Information Delivery Systems (CIDS) or telecentres. The main network operator (Telkom) in South Africa and the two initial cellular operators (Vodacom, MTN) have licence conditions to meet roll out plans by 2003 to provide universal access, through telecentres which were established to bridge the digital divide. Although attempts to bridge the digital divide have taken place, there is a long way to go. A full telecentre which costs around R200 000 to establish, includes installation of an average of five telephones, four computers and modems, a photocopier, fax machine, printer, scanner, overhead projector, television and video-machine (Community, 2000).

It could be argued that telecentres are a good thing without really examining the claim that they represent. Research conducted in Canada, states that Telecentres grow faster than larger metropolitan companies and institutions with which they deal. In Clarenville, Canada, at least 15 different information and network based start-up companies emerged from using the services of the telecentre (Fuchs, 1997). From this there is evidence that telecentres not only develop and provide services for individuals they also develop businesses. According to Universal Access Review (Community, 2000), of 18 telecentres established in South Africa by 1999, some were very successful eg. GaSaleka telecentre in the Northern Province. It offers phones, copying, small business services and computing. The turnover is around R8, 000 per month with a sizeable profit. They also offer computer training, which is certificated and costs, R1 250 per month and is in great demand (Community, 2000).

Questions could arise whether telecentres are sustainable and can be reproduced in the numbers that are required for Universal Access. There are no certain answers to these questions. There is evidence that very few telecentres can meet their running costs. This has led to a debate as to whether telecentres should be seen as a public funded entity or private. However, research has revealed that telecentres are managed better when owners have a stake in them, the entrepreneurial instinct is a strong force in making a centre work effectively. Furthermore, the entrepreneur has made a personal investment for which he/she has to take the responsibility (DRA-Development, 2000).

In India telecentres provide access to the Internet. This centre focuses on doing business over the Internet. Loyola Joseph runs a network of 150 telecentres around Tamil Nadu. These centres are privately owned franchises, with the network providing Internet connections and information services. These centres have also focused on providing jobs in over 50 fields (writing, translating, computer, technical skills and data entry) and each telecentre has provided around 50 jobs (Community, 2000).

According to the research programme conducted in 1997 by the Human Sciences Research Council in collaboration with external research partners and organisations such as Universities, Technikons and the Council for Scientific and Industrial Research (CSIR), it was found that in the South African context, telecentres have been successful to a certain extent only for commercial purpose. An example of this is Hammanskraal Phone Shop which is a centre that started when a local businessman saw the potential demand for cellular phone services, who had the drive and vision to approach Vodacom, a local cellular service provider – with commercially orientated objectives.

The centre provides local residents with free access to a computer based system offering detailed information on a variety of topics and areas. The centre's main focus is on a number of ICT based services run on a commercial basis, mainly cellular telephone links with the outside world, as well as computer typing and printing facilities.

This centre undertook a number of pre development activities such as ensuring that there was a demand for services and activities with regards to commercially orientated activities. There was no pre-development planning such as creating community ownership for the community-orientated (non-commercial) services at the centre. However, Vodacom brought the CSIR in

a supporting role and they installed a computer-based system for residents who could access development-related information, they also trained three facilitators at the centre to assist users. The evaluation of the system by the HSRC as cited by Grossberg, *et al.,* (1998) in Conradie (1998) by users shows that the content of the information on offer was not relevant for locals. It therefore appears that Hammanskraal centre is surviving financially because of the business-orientated measures that were initiated and followed through a response to local communication needs. The community-orientated informational activities are not having a marked effect, seemingly because of unsuitable content, which is to some extent indicative of a lack of ownership and a lack of pre-installation planning.

Based on the recommendations and requirements for telecentre development, the DIT-MLST campus stands at an advantage in developing a telecentre on its premises. DIT-MLST campus has within its infrastructure, academic departments such as the department of entrepreneurial studies, which could be used to foster entrepreneurial development within the SMMEs. The Centre for Skills Development and Technology Transfer of the Steve Biko Campus of DIT has committed itself to skills development, learnership design, development and delivery, ICT driven development projects, SMME business support, venture creation, research for enhancing economic competitiveness and materials development. The proposed entrepreneurial unit at DIT-MLST campus can draw expertise from this department in ensuring the provision of quality services and its sustainability.

The potential of Telecentres should be exploited by providing information on a broader range of context such as job vacancy lists, health issues, upcoming forums on important issues like AIDS, child care, hygiene, job creation and entrepreneurship. People who come to use the telecentre as an information resource are likely to use it for other services. This would mean that more people would be visiting the telecentre and would be encouraged to become members.

DIT-MLST campus has the academic (staff who lecture on various fields of study) and administrative Information Technology Department – the expertise from these departments can be used in developing information systems to suit the SMMEs as well as training of SMMEs to use ICTs. The human resources from these departments including the Department of Electronic Engineering could be utilised to provide technical support and expertise. DIT – MLST campus has to its advantage a co-operative education program (a program where

students are placed in industry during their course of study so that they could gain practical experience). Students within the respective academic departments could be utilised to provide guidance and assistance to the members of the telecentre. The DIT-MLST campus PABX telecommunication infrastructure can be used to provide the telecentre with basic telecommunications services. The department of telephone management services at DIT-MLST campus has to its advantage a management system that will be able to manage the costs of telephone calls.

4.3.5 Technical Support

Technical support refers primarily to the maintenance of equipment. In order to maintain the equipment at acceptable levels of service and availability, technical support is necessary. This support need not necessarily be easily available and accessible. Equipment and service availability is always measured in as time between failures, time to repair and time in service. This kind of technical support or service delivery would create a competitive advantage for DIT-MLST campus gaining customers, as customers would be confident using these services because of the support they would receive from DIT-MLST campus.

Research has also indicated that staff should be given adequate training in correct and efficient use of resources within the telecentre. DIT-MLST campus has to its advantage the human resources skilled in this particular field to meet the needs of the SMMEs. There are economic opportunities presented by MPCC. The provision of training courses and the dissemination of skills can take place where the fruits of this would be education, skills, acquisition, capacity building and empowerment and eventually job creation. The DIT-MLST campus, which has the academic infrastructure, is obliged to provide training as a social responsibility.

4.3.6 Training And Development Issues

More than 50 percent of the respondents in the survey indicated that they would like to attend ICT training in order to improve their business operations. DIT-MLST campus is well predisposed for such services. Information literacy training is a way of transferring computer knowledge to user clients in terms of knowing and advising where to look for the information they need. Online training as well as course work on ICTs can be provided to

create awareness and improve knowledge with respect to ICTs and its benefits to SMMEs. Training and development will not only provide individuals with the skills to conduct their own business, but will make individuals more marketable in finding employment. As clients gain proficiency, they would depend less on the centre's staff for assistance with routine operations.

It is recommended that throughout the life of the telecentre, it is important to adopt a "demo or die" principal, that is to constantly demonstrate what a telecentre provides for. This is important because, it helps to communicate through example, the informal skill transfer and coaching ethos, which help to drive the telecentre forward. Another consideration is the level of experience which people have are varied with the use of information and network technologies, especially when a telecentre is established in a rural setting, some people may have not seen a computer before or understand networks or the Internet. This principle also helps people to manage their own work. It also promotes skills transfer and also provides those with responsibility for telecentre planning and implementation with direct knowledge about people's skills and what the infrastructure can sustain.

Having decided on the range of services that need to be provided the next step will take into consideration the various issues in developing a sustainable business model for the provision of ICTs services. It must be noted that it is beyond the scope of the dissertation to engage in a full treatment of all the issues concerned therefore, only the essential points will be mentioned to elucidate the various issues.

4.4 Issues To Be Considered For A Sustainable Business Model For The Provision Of ICT Services

The key word that describes the business model is 'sustainability', which raises some important implications. Firstly, the term implies that it is in the interest of DIT-MLST campus that the SMMEs in its vicinity develop and grow because this could lead to further business ventures with respect to the value added services of ICT. Secondly, sustainability implies systemic consideration. In other words the problem or the challenge must be approached as comprehensively as possible. Serious thought must be given to how the boundaries of the intervention will be determined. Thirdly, and linked to the above,

sustainability implies that one has to have an ethical framework that would inform the development of the business model and the implementation thereof. Finally, a sustainable service provider implies that the business model must be capable of coping with evolving and transient change, especially with the dynamics involved in the developing business sectors in South Africa, else it may not provide conditions for its effectiveness and continuity. Sustainable measures include:-

Objectives

Clear objectives must be set out. Although this may sound obvious, in some centres there was confusion about how commercial ICT activities were to be reconciled with other free ICT services aimed at serving the public good, although DIT-MLST campus at this stage is not certain about what services they would render free.

Ownership

There must be no doubt about the ownership of the telecentre. The difference between ownership and operation must be well understood among stakeholders. Where does the ultimate responsibility lie? If responsibility is not identified then services will suffer. Unclear, ambiguous, vague ownership will result in problems taking longer to rectify. There would be a lack of confidence in the services offered by DIT-MLST campus.

Business/financial issues

This may seem the simplest of the issues to handle, but one must consider the nature of the SMMEs that will be serviced with respect to all financial risks. Innovative systems have to be devised in order to guarantee return on investment, especially those pertaining to payment, NGO's and public service and the general public for services. Long-term sustainability is expected to be achieved through fees for services provided to the SMMEs although this service could be made available to the private sector. A viable business model must be put into place to ensure sustainable services for the user clients.

Determination of the optimal tariffs vis-a-vis competition and affordability is another challenging issue. Innovative ways must be found to resolve the 'catch 22' situation that SMMEs are faced with in that ICT services are vital for SMME development and growth, but many of the respondents in the survey mentioned that they did not have much money for 'luxuries'. Bulk airtime and a smart card systems may be introduced to save costs and make

affordable services available. As an example the DIT-MLST campus could source funding from the Department of Trade and Industry who has set aside funding for SMME development. There are funding agencies that are making funds available for the development of SMMEs in South Africa. However, Rural Telecommunications are often unattractive to investors because overall revenues are insufficient. In some cases, eg. The Swaminathan Foundation in India, centres are established on a 50-50 basis with a local operator investing 50% and the investor investing 50% of the funds to start up the telecentre business.

Replicability

Efforts to replicate achievements of the business should be made known to the SMMEs or citizens using the telecentre. From this the telecentre can gain popularity and more people would use it. According to Harris (1999) the institutionalising of the telecentre concept will have widespread effects such as new members acquiring the services.

Regulatory issues

It is interesting to note that less than a decade ago a business venture such as that proposed in this research would not be legally possible, due to the legalised monopoly of state-owned organisations such as Eskom and Telkom (previously Posts and Telecommunications). However, de-regulation has come into effect and it is now legally possible to be an independent ICT service providers. The de-regulation of the Telecommunications Services Sector made it possible for competition to develop between network providers and telecommunications service providers. Competition results in cheaper and better prices, which ultimately benefits business and the consumer.

There are two issues that were considered further during the investigation:-

Licensing

If the ICT infrastructure of DIT-MLST campus is going to be used as the switching network there are licensing requirements that have to be fulfilled. Currently the licensing requirements are a R30 000 application fee and 0.1% of revenue after 48 months of the SMME being established (ICASA, 2002). All other licensing requirements must be adhered to in terms of ITU and WTO or any other international standard adopted by the Republic of South Africa.

Technological issues

The ICT infrastructure at DIT-MLST campus must be able to cope with the demand for services and any future demands as well. This means that DIT-MLST campus must have sufficient capacity. In addition, decisions will have to be made regarding the most appropriate technologies. Technologies have now advanced to a stage where there are numerous solutions such as fixed-line, radio/wireless access, broadband wireless, and fixed mobile. The technology will have to obviously match the range of services offered. Other peripheral issues, albeit important, such as power supply, security, and the physical environment must also be considered.

Supply versus Demand

The range of services to be offered is not a trivial issue. Questions such as 'Is the service demand led or supply led?' or 'Is there a line in between and if so how does one determine the line?' need rigorous attention. It is clear from the survey conducted that the DIT-MLST campus ICT service provider cannot rely solely on pent up demand. Demand has to be created as well. DIT-MLST campus can establish a business model by combining telecommunications access with training and development. DIT-MLST campus may also measure customer's needs and provide support services in order to establish demand. A comprehensive marketing strategy needs to be established in order to create demand. There must be continuous improvement and innovation of products and services in order to encourage and maintain a client base.

Human resource issues

The human resource requirements will depend on the range of services offered and also on the number of telecentres (if any) provided at DIT-MLST campus. The telecentre concept could provide opportunities for in-service training for DIT-MLST campus students. DIT-MLST campus will be able to use its current staff infrastructure to provide training and assistance to SMMEs. Provisions in the Employment Equity Act of 1998, Skills Development Act of 1998, Labour Relations Act of 1995, the Occupational Health and Safety Act of 1993, the Compensation for Occupational and Injuries and Diseases Act of 1993, the Unemployment Insurance Fund Act of 1996 and any other applicable laws in terms of regulated business operation would be taken into consideration.

Ethical Issues

Operating within an ethical framework is important for the sustainability of the business venture. Ethical issues will also refer to codes of conduct, practices and the policy framework within which the SMMEs using the services of DIT-MLST campus would operate. This would include financial administration as well. The framework for the confidentiality of data and business information must be developed to prevent the divulging of trade information. The fact that DIT is a public Higher Education Institution adds to the pressure of maintaining ethical standards.

Information Support

This refers to the assistance that the telecentre can offer to clients in terms of knowing and advising where to look for the information that they need. This service could be extended by engaging with known information providers to make certain types of information available across the Internet. This may extend to the development of an Internet portal, which allows access to information that is relevant to the client for business.

Institutional Support

The establishment of a business at the DIT-MLST Campus will need various forms of assistance, which would enhance the sustainability of the business and enhance client services. Such assistance would include managerial and financial advice, organisational direction, service delivery, operational support and co-ordination. It would need a team like operating environment in which ideas and results can be shared and from which best practices in business can emerge.

Evaluation

It is important to evaluate the telecentre development as well as the development of the SMMEs around the DIT-MLST campus and make the necessary adjustments if plans are not working out accordingly.

4.5 Proposed Business Model For The DIT-ICT Department

DIT has various campuses viz. M L Sultan, Steve Biko, City, Duzi, Indumiso, Brickfield and Gamalakhe. For the purpose of this research the infrastructure of the M L Sultan Campus was investigated.

Currently there are 60 external telephone lines with 1000 existing extensions. The infrastructure is expandable to 1216 standalone, 65 000 extensions in the network. To the advantage of DIT-MLST campus, its PABX system is facilitated by a DECT Cluster Controller Card (DCC) that plugs into the IS3000 voice server. Each DCC card can connect up to 8 base stations. These base stations form a micro cellular infrastructure to cover the required area. A cell is the area that is covered by a single base station. This area can typically cover up to a 300m radius (depending on the characteristics of the building). Currently 8 software cards are available. Each software card can connect up to eight DECT phones and 32 ordinary extensions. In the event DIT providing the informal sector in its vicinity with telecommunications by means of a telecentre or cordless telephones, it already has the infrastructure in place. Currently the PABX infrastructure is supplied and maintained by Advanced Software Technology Networks (AST Networks). The PABX infrastructure is connected to a Telephone Management System that records all incoming and outgoing calls. This is an added advantage for DIT-MLST campus to log the costs of services to SMMEs within the network. There are currently 2 staff members involved in operating the telephones/switchboard.

The results of the survey that was undertaken provided important insights as to what various issues have to be considered by DIT-MLST campus if it were to become a sustainable ICT provider to SMMEs in its vicinity. The idea of just providing a voice service on demand is not valid anymore. From results of the survey conducted it has revealed that services such as training and development were just as important as providing a telephone line. Furthermore DIT-MLST campus will not be able to provide just a telephone line to the informal traders around the 500m radius. Alternate means of providing access as discussed in Section 4.3 need to be considered. However, it is encouraging to note the possibilities of a win-win situation whereby DIT-MLST campus develops revenue streams while at the same time investing in the people (through activities such as training) and ultimately in the eThekweni Metropolitan economy.

The next section provides a table with the cost of telephone calls per month, which is utilised by the SMME sample in this research.

Table 4.3: Profile of the various categories of business, reflecting the range of costs of fixed line telephony per category

Categories of Business	Total Inter-Viewed	R 250-350	R 350-450	R 450-550	R 550-650	R 650-750	R 750-850	R 850-950	R 950-1050	R 1050-1150	R 1150-1250
Fast Food/Takeaway	9	-	-	-	-	-	-	-	-	-	-
General Dealers	6	1						1	2		
Clothing and Linen (Retail)	3	-	1	2	-	-	-	-	-	-	-
Clothing and Linen Manufacturing)	2	-	-	-	-	-	-	-	-	2	-
Driving Schools	4	-	-	-	-	-	-	-	-	-	-
Motor Repairs	3							1			1
Hairdresser	2	-	-	-	-	-	-	-	-	-	-
Bookseller	1	-	-	-	-	-	-	-	-	-	-
Health Products	1	-	-	-	-	-	-	1	-	-	-
Shoe Repairs	1	-	-	-	-	-	-	-	-	-	-

In addition to fixed line telephony there are businesses that use cellular phones to conduct business (see Table 4.2). There is one business under the category of fast foods/takeaway that had a fixed line for incoming calls only and used the cellular line to conduct business. This happens to be a business occupying the DIT-MLST campus. There are two other businesses that are based on the DIT-MLST Campus premises that have access to fixed line telephony for incoming calls only. From this information, it can be noted that there is a business opportunity DIT-MLST campus to provide services for the three businesses situated on its campus. Using cellular telephones to conduct business would result in higher overhead costs in running a business. Fixed line telephony has an advantage over cellular telephones in that it is cheaper and it could be used for other purposes such as Internet that reduces costs even further in business. On the contrary the growth of cellular phones is much greater than fixed line telephony in developing countries. This is a result of lack of access to basic telecommunications, the risks associated with providing telecommunications in the absence of basic infrastructure such as physical premises and electricity. However, this research has pointed to other means of providing access in these situations. If one considers DIT-MLST campus and the 500m radius within which it is situated. There are a vast number of SMMEs that do not have basic infrastructure in this area.

Within the General Dealer category, one business had no idea of the telephone account as this was being handled by the head office and one business used a cellular phone only to conduct business. This reflects on autocratic business management techniques. If DIT-MLST campus had to provide entrepreneurial training and development, businesses would be informed about keeping the records of their branches within the branches. Thus managers are able to reflect on what are the actual costs of running their branches and aim towards the sustainability of their own branch.

Table 4.3 also provides important data in determining expected income if DIT-MLST campus had to become an independent telecommunication service provider.

This chapter reported on the results of the analysis of the research study conducted as well as a brief history of DIT and the geographical/economic context within which DIT-MLST campus is situated. It also reported on the range of services that could be provided by DIT-MLST campus and the issues that must be considered for a sustainable business model for the provision of ICT services. It reviewed the PABX facility available at DIT-MSLT campus in the event of DIT-MLST campus becoming an ICT service provider for SMMEs around its vicinity.

CHAPTER 5

CONCLUSION OF THESIS

According to research the use of ICTs by SMMEs is limited. There are a few SMMEs that use ICTs for business-to-business communication or use ICTs to increase their market base. Thus there is a need to address the limitations for the adoption of ICTs for SMME development.

It must be emphasised that Telecommunication not only serves critical sectors like education, safety and health but also serves as a stimulant for creating new small businesses and sustainable improved productivity, as efficiency of business is greater when access to Telecommunications services are available as discussed in this research in Chapter 2 and Chapter 4.

As a result of South Africa's integration into the world market, traders need to have in their possession a certain amount of key data such as transportation options and prices, insurance facilities, credit availability, import and export regulations etc. Many SMMEs are still unable to reach trade-related information or make their products known to would-be customers because they lack telecommunications services or the necessary equipment such as a computer which is to expensive to conduct business.

Equity in the telecommunication services is a central factor to the relationship between telecommunications and development. However, research has indicated that there is a sharp contrast of penetration of phone lines between urban and rural areas. Furthermore, if South Africa has to become an information and knowledge based society and be part of the global economy, serious efforts must be deployed to bridge the disparity of ICTs services within South Africa.

The provision of access to achieve universal services within South Africa seems to concentrate more on rural areas that are referred to as under serviced areas. This research has revealed that there are under serviced areas within urban and peri-urban areas such as the vicinity in which DIT-MLST campus is situated. However there are different delivery

options that can be exploited to provide ICTs access to SMMEs and local users as mentioned in Section 4.3. These options include the provision of wireless/radio based technology and telecentres.

Telecentres as access points for ICTs depend on subsidies as a start or for sustainability. Research has proved that private ICT access points have been more successful, based on the fact that private entrepreneurs will try to ensure sustainability because of their vested interest and personal financial gain. Research has also proved that managers who co-ordinate activities of ICT access points lack skills in running these centres effectively.

In utilising the advantage of the double edged opportunity of providing SMMEs with basic telecommunication or access and establishing an SMME within its own institution DIT-MLST campus has the necessary resources to establish such a business opportunity.

The promotion of SMMEs requires an understanding of the problems entrepreneurs face as they seek to develop such ventures. For all those parties involved in SMME development it is important for them to sense where the most likely growth opportunities are to be found as well as inform the requirements for developing and operating business enterprises in high growth areas.

The vicinity within which the DIT-MLST campus is situated has the potential for high growth taking into consideration the passing trade as mentioned in Section 4.1 that takes place within this vicinity. The trading that takes place within this vicinity of DIT-MLST campus, spurs an opportunity for private and public investment into these areas that can achieve positive returns on investment and more rapid rates of economic growth.

The SMME development within the DIT-MLST Campus region merely needs the necessary infrastructure support such as basic telecommunication, physical premises and electricity. It also needs training and development in entrepreneurial education and mentoring of enterprise development. One of the objectives of the South African Government is to ultimately develop SMMEs especially the micro-enterprise sector to grow and develop and join the formal economy and finally become part of the world market. Serious consideration for development needs to be given to the area around the DIT-MLST campus vicinity as outlined in this research. This area has the potential of becoming a highly developed area with great

business activity and success, which will result in empowerment of citizens and economic development.

Reliable communications provide access to information, employment opportunities, education and health facilities, which impact on productivity and social networks, which in turn influence the ability of individuals and households to participate productively in the economic sphere.

5.1 How were the goals of the Research Achieved?

The goals of this research were explicitly outlined in Section 1.2 The main goal of determining the telecommunication needs of SMMEs within the DIT-MLST campus was guided by a literature study conducted by the researcher. The literature study also guided the researcher in obtaining the critical success factors that a business model needs to take into account in providing ICTs to SMMEs within its vicinity. From the research conducted the researcher was able to determine whether the PABX infrastructure that is needed by DIT-MLST campus in providing ICT services to the SMMEs within its vicinity was sufficient.

An intense survey and analysis of the salient literature was conducted. The main sources of literature included journals in the field, such as SMME development, ICTS and its potential for SMME development, the de-regulation of the Telecommunications Services sector in South Africa, a range of Masters and Doctoral theses based on rural telecommunications, ICTs and rural telecommunications technology transfer/diffusion into rural areas of South Africa. Respective Government publications based on SMME development, skills training, and competition policy in South Africa was also consulted. Various reports on providing access for telecommunication in rural areas via a telecentre were also reviewed. Internet searches on the relation between economic development and telecommunications and its role in developing SMMEs was consulted.

The researcher had two meetings with the Technical Sales Expert from AST Networks, the service provider of the DIT-MLST PABX infrastructure. These meetings were held to determine the PABX infrastructure at DIT-MLST campus and the infrastructure needed to establish a SMME to provide basic telecommunication services for the SMMEs within the

DIT-MLST Campus vicinity. The cost implications for the provision of additional software in case a financial business model has to be considered.

The researcher had several discussions with members of ICASA, Universal Service Agency and the Department of Telecommunications with respect to the various legal implications in developing a SMME to provide telecommunications. Discussions were also held between the researcher and a prospective telecommunication licensee for insights into the development of such a business. These discussions have assisted the researcher in gaining a better understanding of the Telecommunications Act, the de-regulation process, issues of ownership and under serviced area licence application information and the technical issues for switching networks in case of a business model being implemented.

From this research, one important factor that was dominant was that most of the SMMEs within the DIT-MLST Campus lacked basic infrastructure. Thus, in determining the telecommunication needs of SMMEs within the DIT-MLST campus a new thread in the research emerged that there is a need to provide value added services such as training and development, support and assistance needs to be taken into consideration in order to make ICTs accessible to SMMEs.

5.2 Contributions Of This Research

Although this research should focus on entrepreneurial activity, it also has a major contribution of Telecommunications and its contribution to economic development. From the theoretical study, the researcher learnt that emphasis is placed on rural telecommunications in South Africa. The focus is on extending networks into areas currently without any or limited networks such as those in rural areas, which are regarded as under serviced areas. There is a need to focus on those areas that have networks but do no enjoy access like the vicinity within which the DIT-MLST campus is situated. There are many areas in South Africa, which are situated in urban areas that lack access to telecommunications. Lack of access of telecommunications in urban areas will be aggravated by the migrant labour system, which has been a link to the rural and urban economies through the movement of people. There is a huge backlog of rural infrastructure that persists, thus urbanisation runs the risk of simply relocating rural poverty into urban slums.

The main contribution of this research is the identification of the needs of typical SMMEs in South Africa, with special reference to ICT access, the scope for the potential services, the type of infrastructure needed and the elements/issues one must consider in developing a business model.

5.3 Directions For Possible Further Research

This research focuses only on the elements that need to be taken into consideration when developing a business model. There is room for future research into the implementation of such a business model and the evaluation thereof. The results of the evaluation could then be used to refine a business model. Thereafter this model could be used to inform other institutions wishing to become independent service providers to SMMEs in its vicinity.

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This questionnaire has been designed to ascertain the Telecommunication needs for SMME's within the MLST vicinity.

SECTION 1

DETAILS OF BUSINESS

1. Name of Business ----------

2. Address of Business ----------

3. Core Business ----------

4. Number of Staff ----------

Place an X in the appropriate column

5. Do you have a telephone/fax line

Yes	No

Liaising with Wholesalers/ retailers and Placing Orders		Liaising and accepting orders from consumers		General communication eg. faxing of documents/letters or negotiating business matters		Advertising of your business in the local directory	
Yes	No	Yes	No	Yes	No	Yes	No

6. If no, are you aware of the following benefits a telephone facility/fax facility can render to improve your business-

7. Do you have an Internet Facility

Yes	No

7.1 If yes, do you use the Internet to conduct business as follows:-

Banking		Placing Of Orders		Designing of garments to suit customers needs		General information Retrieval eg. information on flights available/trends and fashion		Advertising	
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
On line Business Training		On line Business		E-mail and General Communication		Determining Consumer Needs eg. specification of products needed		Marketing your products/ services	
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

and

7.2 Do you use your computer for?

Stock Control		Administrative Records		Costing of Goods/ Quotations		Bookkeeping/ Accounting	
Yes	No	Yes	No	Yes	No	Yes	No
Business Training		Word Processing		Maintaining a database of clients		Maintaining a database for staff records	
Yes	No	Yes	No	Yes	No	Yes	No

7.2.1 If you do not, would you prefer guidance/training or assistance to using the System for the above purpose listed 7.1 and 7.2 if it can be shown that your business will improve with the above facilities.

Yes	No

8. What are the obstacles or constraints that you are faced with in acquiring?

A telephone/fax line:-

.....

.....

.....

An internet facility:-

.....

.....

.....

8.1 Any other reason for not acquiring any of the above telecommunication facilities listed in 8.

.....

.....

9. If you have a telephone line, your monthly telephone bill is approximately:-

R250-R350	R350-R450	R450-R550	R550-650	650-750
R750-R850	R850-R950	R950-R1050	R1050-R1150	Greater than R1150

10. Do you use a cellular phone during business for personal or business calls?

Yes	No

11. If yes, what is the average number of business calls you make per day?

1-5	5 - 10	10-15	15-20	20-25	Greater than 30

12. If you could have a fixed line that reduces your cell phone costs by more than half would you still prefer using your cellular phone or your fixed line?

Fixed Line	
Cellular Line	