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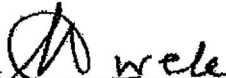
NO. 1252

10 NOVEMBER 2017

**FINAL INFORMATION AND COMMUNICATION TECHNOLOGY SMALL,
MEDIUM AND MICRO-ENTERPRISE DEVELOPMENT STRATEGY
(FINAL ICT SMME DEVELOPMENT STRATEGY)**

I, **Dr. Siyabonga Cyprian Cwele**, Minister of Telecommunications and Postal Services hereby publish, in accordance with section 3(1)(g) of the Electronic Communications Act, 2005 (Act No.36 of 2005), the Information and Communication Technology Small, Medium and Micro-Enterprise Development Strategy that was approved by Cabinet on 01 November 2017.

Copies of the ICT SMME Development Strategy can be downloaded from the Department's website at www.dtps.gov.za


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MINISTER OF TELECOMMUNICATIONS & POSTAL SERVICES
DATE: 07/11/2017



telecommunications
& postal services

Department:
Telecommunications and Postal Services
REPUBLIC OF SOUTH AFRICA

ICT SMME Development Strategy

Information Communications and Technology
Micro Enterprises Development Strategy
“Unlocking the potential of ICT SMMEs”



November 2017

ACRONYMS

ADSL	Asymmetric Digital Subscriber Line
B-BBEE	Broad Based Black Economic Empowerment
BBSDP	Black Business Supplier Development Programme
BEE	Black Economic Empowerment
CCTV	Closed-Circuit Television
CIS	Cooperative Incentive Scheme
CRM	Customer Relationship Management
DFIs	Development Finance Institutions
DIRCO	Department of International Relations and Cooperation
DoC	Department of Communications
DSBD	Department of Small Business Development
DTI	Department of Trade and Industry
DTPS	Department of Telecommunications and Postal Services
ECA	Electronic Communications Act
ECTA	Electronic Communications and Transactions Act
EEP	Equity Equivalent Investment Programme
EASSy	Eastern Africa Submarine Cable System
EIP	Enterprise Incubation Programme
EME	Exempt Micro Enterprise
GDP	Gross Domestic Product
ICASA	Independent Communications Authority of South Africa
ICT	Information and Communications Technology
IDC	Industrial Development Corporation
IP	Intellectual Property
IP	Internet Protocol
ISEDs	Integrated Small Enterprise Development Strategy
ISP	Internet Service Provider
ISPA	Internet Service Provider's Association
ISV	Independent Software Vendors
IT	Information Technology
ITU	International Telecommunications Union
LAN	Local Access Network
MICT Seta	Media, Information and Communication Technologies Sector Education and Training Authority
MNO	Mobile Network Operators

MTEF	Medium Term Expenditure Framework
MVNOs	Mobile Virtual Network Operators
NBIA	National Business Incubator Association
NDP	National Development Plan
NEF	National Empowerment Fund
NIPF	National Industrial Policy Framework
NRF	National Research Fund
NSBA	National Small Business Act
OECD	Organisation for Economic Co-operation and Development
OEM	Original Equipment Manufacturer
OTT	Over-the-Top
PSIRA	Private Security Industry Regulatory Authority
QoS	Quality of Standard
QSE	Qualifying Small Enterprise
SABS	South African Bureau of Standards
SAPO	South African Post Office
SARS	South Africa Revenue Service
SEDA	Small Business Development Agency
Sefa	Small Enterprise Finance Agency
SITA	State Information Technology Agency
SMMEs	Small Medium and Micro Enterprises
SPII	Support Programme for Industrial Innovation
StatsSA	Statistics South Africa
THRIP	The Technology and Human Resources for Industry Programme
TIA	Technology Innovation Agency
TV	Television
US	United States
VC	Venture Capitalist
WAPA	Wireless Access Providers' Association
WISPs	Wireless Internet Service Providers
WOAN	Wireless Open Access Network
ZADNA	South African Domain Name Authority

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1. EXECUTIVE SUMMARY

The ICT SMME Development Strategy is a sector specific intervention to address challenges facing SMMEs operating in the ICT sector. It sets the policy context and defines the vision for the development of the ICT SMMEs in South Africa up to 2020, and outlines the support mechanisms required to realise this vision. The focus of this Strategy is two-pronged, that is, it focuses on accelerating the development and growth of small enterprises in the ICT sector as well as on creating support mechanisms to increase the levels of uptake and usage of ICT services by SMMEs across various sectors of the economy.

The Strategy gives an overview of the SMMEs operating in the ICT sector, thus providing details on their structure, design, use of ICTs, contribution to job creation and economic growth at large. It is premised on the challenges expressed by SMMEs in the ICT sector in various consultations with the Department and also on an analysis of the ICT industry value chain study that was conducted. The study focused largely on identifying opportunities for SMME development in the Telecommunications and Information Technology areas, and also highlighted challenges that are hampering the development of SMMEs, some of which are barriers to entry into the ICT sector by new SMMEs.

The ultimate goal of this Strategy is to unlock business opportunities and create an enabling business and administrative environment for SMMEs in the ICT sector to thrive and advance into successful and sustainable entities. At the core of the document is a feasible public-private partnership which supports technology start-ups, strengthens existing enterprises and extend support programmes to potentially viable SMMEs. The three main objectives of the strategy includes facilitate accelerated development and entry of SMMEs, increase the extent of uptake and usage of ICTs by SMMEs across economic sectors, and establish a coordinated and integrated planning mechanism for the development of ICT SMMEs.

In order to realize the vision, the set goal and strategic objectives of this Strategy, models to support start-ups, to develop existing ICT SMMEs, as well as to increase the levels of uptake and usage of all SMMEs across various sectors of the economy are proposed. The strategic interventions required to implement these models are also outlined.

At the core of the strategy is the requirement for government to establish a coordinated mechanism for SMME development initiatives and to establish partnerships with both private and public sectors stakeholders to jointly realise the set objectives. The Strategy is formulated in line with the Integrated Small Enterprise Development Strategy, which aims to strengthen support for SMMEs' access to finance, create an enabling regulatory environment, expand market opportunities for specific categories of small enterprises and localise small business support.

2. INTRODUCTION

The Small Medium and Micro Enterprise (SMME) sector has been identified as an important strategic sector in the overall policy objectives of the Government of South Africa and it is seen as a driver of change for inclusive economic growth, national development, employment creation and poverty reduction.

In most developed countries, SMMEs contribute 60% of employment and 50% to the gross domestic product (GDP). In developing countries, the figures are just about 30% and 17%, respectively.¹ In 2014, China had an estimated 42 million SMMEs which contributed 69% to China's GDP. More importantly, China's SMMEs are said to account for 80% of jobs and contribute approximately 82% to tax².

The South African government recognises SMMEs as the backbone of the economy, as SMME employers account for 14% total employment and contribute 42% to the GDP³. There is also an acknowledgement that SMMEs promote broad based equitable development and provide more opportunity for women and youth participation in the economic development of the country.

According to the National Development Plan (NDP, 2012), getting SA into a high-growth trajectory demands that the country fundamentally changes its game plan and places small businesses and cooperatives at the centre of our war against poverty, inequality and unemployment. Furthermore, the NDP envisages that the small business sector will create 90% of the expected 11 million jobs by 2030. Incorporated as one of the priorities of the 9 Point Plan is the need to unlock the potential of SMMEs, cooperatives and other rural enterprises, to contribute into the South African Economy. The Medium Term Expenditure Framework (MTEF) also highlights the important need of developing markets for SMMEs and supporting incubators for SMMEs.

With the globalisation trend, the SMME sector is not merely seen as a sector for "protection and promotion" but, more importantly as a driving force for "growth and development". Therefore, the Government of South Africa recognises that enhancing national and international competitiveness is fundamentally important for this sector to face the emerging challenges and develop SMMEs as a thriving sector. This Strategy thus centres on identifying and addressing the challenges that SMMEs that operates in the ICT sector faces as well as promoting the use of ICTs by SMMEs across other social and economic sectors so as to improve efficiency and maximise productivity.

¹ Economic Opportunity Series. The Role of Information and Communication Technology Sector in Expanding Economic Opportunity, by William J Kramer, Beth Jenkins and Robert S. Katz. 2007.

² David Wang, Presentation at the National ICT SMME Workshop, Birchwood Hotel, Boksburg. 23-24 March 2015

³ Small Medium and Micro Enterprises in South Africa, Report Commissioned by SEDA, 2016.

3. BACKGROUND

3.1 POLICY AND REGULATORY ENVIRONMENT FOR SMMEs

Since 1994, the development of the SMME sector has been an important focus for the South African government. The sector has been identified as a vehicle to improve employment and living standards of individuals who have been denied access to opportunity under the apartheid government. Numerous policy and legal factors can erode the capacity of SMMEs to create employment opportunities, foster innovation, sustain themselves and produce wealth. Even when the policy and legal instruments themselves are supportive of SMMEs, their enforcement and implementation may be inadequate or inefficient, thus defeating the purpose they were enacted for. The policies and legislative instruments that were developed to enable and advance SMME development agenda include the following:

3.1.1 General Small Business Policy and Legislation

The policy, regulatory and other interventions put in place to support small business development are the following:

National Strategy for the Development and Promotion of Small Business

The post-apartheid government developed the National Strategy for Development and Promotion of Small Business, after publishing the White Paper on the National Strategy for Development and Promotion of Small Business in 1995. A year later, the National Small Business Act was passed by Parliament, which provided for the institutions to implement this strategy. These policy and legislative interventions were introduced to address the imbalances created by the developmental agenda of the apartheid regime.

Small Business Development Act of 1996

The National Small Business Act of 1996 was enacted to provide for the establishment of the National Small Business Council and the Ntsika Enterprise Promotion Agency - now SEDA⁴ - to provide guidelines for organs of state to promote the development of small business.

SEDA provides SMMEs with non-financial support. Its work is carried out in line with the Integrated Small Enterprise Development Strategy, which aims to achieve the following goals:

- Strengthen support for SMMEs' access to finance.
- Create an enabling regulatory environment.
- Expand market opportunities for specific categories of small enterprises.
- Localise small business support through a grid of SEDA-coordinated information and advice access points.

Among the institutions that provide support to SMMEs, (including support for ICT SMMEs) is the Small Enterprise Finance Agency, commonly known as Sefa. Sefa was established in April 2012 as a result of the merger of the South African Micro Apex Fund, Khula Enterprise Finance Ltd and the small business activities of Industrial Development Corporation (IDC). Sefa's mandate is to

⁴ Small Enterprise Development Agency

foster the establishment, survival and growth of SMMEs and contribute towards poverty alleviation and job creation.

Sefa provides access to finance to survivalist, micro, small and medium businesses throughout South Africa. The organisation delivers wholesale and direct lending, provides credit guarantees to SMMEs, supports the institutional strengthening of financial intermediaries, and creates strategic partnerships with a range of institutions for sustainable SMME development and support. Furthermore, Sefa monitors the effectiveness and impact of financing, credit guarantees and capacity development activities.

Cooperatives Act

The Electronic Communications Act (ECA) requires the Department to support the development of cooperatives. South African cooperatives are governed through the Cooperatives Act of 2005. The Act aims to create a legal and institutional framework that encourages the registration and development of cooperative enterprises and increased support for cooperatives from government agencies. The Act promote the ideals of self-help and social responsibility through the cooperative model. In countries like Italy and the United Kingdom, cooperatives have improved the sustainability of community enterprises and opened the economy to disadvantaged and vulnerable social groups⁵.

National Empowerment Fund

The National Empowerment Fund (NEF) was established in 1998 and effectively operationalised in 2004. The NEF provides funding to black-owned businesses, both SMMEs and large enterprises. Research shows that from 2003 to 2010 a total of 457 million rand out of 1.5 billion rand spent was allocated to small enterprises.

Establishment of a New Ministry of Small Business

In 2014, the President established the Department of Small Business Development (DSBD) as part of demonstrating government's commitment to place the economy and job creation at centre stage. The Department was established to enable government to unlock economic opportunities and thus achieve inclusive economic growth and sustainable employment, particularly for women, youth and people with disabilities. It provides oversight to small business development agencies such as SEDA and Sefa. Furthermore, it coordinates government's small business development agenda, across all departments. In addition, DSBD has targeted projects and programmes that are being rolled out and they include:

- The Black Business Supplier Programme - introduced in 2002 to address the constraints that many black-owned small enterprises faced in participating in the mainstream economy;
- Cooperative Incentive Scheme (CIS) whose objective is to improve the viability and competitiveness of co-operative enterprises by lowering the cost of doing business through an incentive that supports B-BBEE; and,
- Enterprise incubation programme which supports the establishment of new incubators and for the growth and expansion of existing incubators.

⁵ Sangonet, <http://www.ngopulse.org/article/cooperatives-and-nonprofit-sector-south-africa>

Broad-Based Black Economic Empowerment (B-BBEE)

The issues of B-BBEE and transformation in general have been placed high on the agenda of the government. B-BBEE aims to ensure that the economy is structured and transformed to enable the meaningful participation of the majority of its citizens and to further create capacity within the broader economic landscape at all levels through skills development, employment equity, socio economic development, preferential procurement, enterprise development (especially small and medium enterprises), promoting the entry of black entrepreneurs into the mainstream of economic activity, and the advancement of co-operatives.

The amended BEE Codes of Good Practice, which became effective on 1 May 2015 have made it easy for business owners with a turnover of under R10 million (a category for which most SMMEs fall under) to obtain BEE certification. These amended codes are small business friendly, as they minimize compliance costs for them. ICT SMMEs will also benefit from this development.

The DTPS established the B-BBEE ICT Sector Council in September 2015 to strengthen the focus on transformation of businesses in the ICT sector. This was followed by the launch of the Amended B-BBEE ICT Sector Code in November 2016. Every enterprise falling within the ICT sector is expected to implement the principles of transformation in respect of Preferential Procurement and Supplier Development. Considerable emphasis is placed on Small (QSE) and Micro (EME) enterprises within the ICT supply chain. Code AICT400 lists several general principles, including:

- To actively support procurement from Black Owned QSEs and EMEs by identifying opportunities to increase procurement from local ICT suppliers to support employment creation.
- To support procurement from Black Owned and Black Women-Owned businesses to increase the participation of these businesses in the ICT Sector.
- To promote the use of Black Owned Professional Service Providers and entrepreneurs as suppliers in the ICT Sector.
- Measured Entities receive recognition for any Enterprise and Supplier Development Contributions that are quantifiable as a monetary value using a Standard Valuation Method.
- Measured Entities are encouraged to align their Enterprise and Supplier Development initiatives with the designated sectors of government's localisation and valued adding programmes.
- Measured Entities are encouraged to align their Enterprise and Supplier Development initiatives with their supply chain requirements thereby linking Enterprise and Supplier Development with Preferential Procurement.
- Qualifying Enterprise and Supplier Development Contributions of an ICT Measured Entity are recognisable on an annual basis.
- Measured Entities are encouraged to develop and implement an Enterprise Development and Supplier Development plan for Qualifying Beneficiaries.

Multinational companies that cannot have local ownership are encouraged to use the Equity Equivalent Investment Programme (EEP) to invest in sustainable enterprise development to increase black ownership of the economy in South Africa.⁶

Preferential Procurement Policy: 30% Set-Aside for SMMEs

The Preferential Procurement regulations of 2017, provides an added advantage to designated groups and Small Medium and Micro Enterprises (SMMEs) also classified as EMEs and QSEs in B-BBEE and the Codes of Good Practices. These Regulations which came into effect on the 1 April 2017, makes provision for government to set-aside 30% of appropriate categories of State procurement for purchasing from SMMEs, cooperatives as well as township and rural enterprises.

3.1.2 ICT Policy and Legislations for SMME Support

National Integrated ICT Policy White Paper

The main purpose of the National Integrated ICT Policy White Paper is to unlock the potential of ICTs to eliminate poverty and reduce inequality in the country by 2030. One of the interventions of the White Paper is to tackle digital exclusion by supporting interventions that boost the manufacturing and Software development sectors and facilitate growth in SMMEs in the ICT sector. Section 10.6.1 of the policy (Building a digital economy and e-commerce) further speaks about promoting small and micro enterprises through:

- Raising awareness of the benefits of ICTs;
- Building digital and IT Skills and;
- Encouraging the development of local software that give SMMEs access to software without incurring high capital costs.

The White Paper further outlines a number of targeted support interventions for the ICT SMME sector. The Policy suggests several noble mechanisms such as the deployment of incubation hubs and ICT centres for SMMEs, creating an enabling intellectually property environment that enables SMMEs to thrive. The proposed Wireless Open Access Network (WOAN), does not only facilitate sharing of infrastructure, but will provide SMMEs access to critical infrastructure. Moreover, the new spectrum regime contained in the policy offers massive benefits for SMMEs, as it prioritises sectors that have been excluded. Lastly, the application of the “use it or lose principle” has been modified to suit the challenges faced by small enterprises in the sector.

Broadband Policy⁷

The objective of the policy is to facilitate the provision of affordable, accessible, universal access to Broadband infrastructure for citizens, businesses, communities and the three spheres of Government, stimulate the usage of Broadband services in order to promote economic development and, act as an enabler for further social benefits. The policy also aims to stimulate the growth of SMMEs and cooperatives, thereby reducing the barriers to entry and access to markets. It presents immense opportunities for ICT SMMEs in the roll-out of the broadband infrastructure. It further proposes the development of innovative funding mechanisms, which extend sources of funding, rather than reliance on contributions by operators.

⁶ Guidelines: Equity Equivalents Programme for Multinationals

⁷ Broadband Policy for South Africa. Government Gazette Vol.541, No.33377, dated 13 July 2010.

Electronic Communications Act and Electronic Communications and Transactions Act

The Electronic Communications Act (ECA) provides for the regulation of electronic communications in the country. It promotes and facilitates the convergence of technology and universal provision of ICT services to all. Objective 2(p) of the Act mandates government, through the Department of Telecommunications and Postal Services, “to develop SMMEs and cooperatives” in the ICT sector.

Similarly, the Electronic Communications and Transactions Act's (ECTA) objects are to enable and facilitate electronic communications and transactions in the public interest, including to promote SMMEs within the electronic transactions environment (objective 2(1)(p)). This Strategy also derives its objectives from these two ICT sector legislations.

Department of Science and Technology

The Department of Science and Technology (DST) is concerned with the promotion and enhancement of technological advancement and capability of the country with emphasis on development of scientific innovation and research. The Department established the Technology Innovation Agency (TIA) and its mandate is to provide funds for innovative activities, including supporting potential ICT entrepreneurs and innovators.

The Department of Trade and Industry

In addition to providing incentives for small enterprise development, the Department of Trade and Industry has put in place programmes such as:

- The Support Programme for Industrial Innovation (SPII) is designed to promote technology development in South Africa's industry, through the provision of financial assistance for the development of innovative products and/or processes,
- The Technology and Human Resources for Industry Programme (THRIP) is a flagship research and development programme of the dti and the National Research Fund (NRF),
- National Industrial Policy Framework (NIPF), which provides strategic direction to the economy with respect to industrial development.

Intellectual Property and Entrepreneurship Development

In line with the recommendations of the National Integrated ICT policy White Paper, the Department of Trade and Industry is working towards finalising an Intellectual Property Policy which will incorporate IT models that promote entrepreneurship and ICT small enterprise development. Amongst the models to be considered is the Utility Model. In the utility model, IP protection is granted for incremental improvements, since it is assumed that the invention might have existed before and, it is less costly compared to filing a full patent. The DTI has gazetted phase 1 of the IP Policy for public comments, with seeks to address issues pertaining to the ICT sector.

3.2 THE STATUS OF SMMEs IN THE ICT SECTOR IN SOUTH AFRICA

According to the latest research conducted by SEDA (January 2016), there are 2 251 821 SMMEs, 667 433 are operating in the formal sector and 1 497 860 in the informal sector. The SMME sector is also said to account for 14 % of total employment. Of importance is that the general SMME sector's percentage contribution to South Africa's Gross Domestic Product (GDP) is estimated at 42%. The report also reveals that the black owned formal SMMEs account for 34% (226 927) of

the total formal SMMEs. The study also found that there is a substantial distinction between the formal and informal sectors. The formal sector is mainly dominated by white individuals located in Gauteng and the Western Cape provinces, with a higher income generation. The informal sector on the other hand, provides most jobs, especially in rural provinces. The table below represents these statistics:

Table 2: Key SMME indicators

Key Indicators	2015
Number of SMMEs	2 251 821
Number of formal SMMEs	667 433
Number of informal SMMEs	1 497 86
SMME owners as a percentage of employment	14%
% contribution to GDP	42%
% Black owned formal SMMEs	34%

Source: SEDA, 2016

Sectoral analysis

A sectoral analysis of the SMME sector shows that most SMMEs (944 500) operate in the domestic trade (wholesale and retail) and accommodation sector of the economy, followed by the community, social and personal services sector. The transport and communications sector, which also encompasses ICT/Communications related economic activities has 133 134 SMMEs. Of these, 56 620 (42.5%) are formal enterprises and 76 514 (57.5%) are informal establishments.

The structure and size of the ICT SMME sector in South Africa cannot be effectively determined, considering the lack of reliable data. Moreover, the lumping of the transport and communications sub-sectors makes it impossible to determine the exact number of ICT SMMEs operating in the South African economy. As such, continuous engagement with Statistics South Africa (StatsSA) is critical to ensure segregation of these figures in the future. Data published by the Media, Information and Communication Technologies Sector Education and Training Authority (MICT Seta) in its Sector Skills Plan suggests approximately 15 000+ SMMEs in the ICT sector.

In its submission to Parliament's enquiry on the cost to communicate strategy process, the Wireless Access Provider's Association of South Africa (WAPA), state that there are more than 500 SMME wireless access service providers in South Africa providing access to areas where communities have no alternative access. These are largely SMMEs, which promotes a model of community-based SMMEs covering small areas and interconnecting with each other to provide ubiquitous access to the Internet to rural predominantly places contrary to mobile operators⁸.

On the other hand, the Internet Service Provider's Association (ISPA), as of July 2017, had 183 members. Of the total 18 are large, 28 medium and the remainder small members. As mentioned earlier, it becomes critical that a central database of ICT SMMEs be developed and continuously updated to inform policy and decision making⁹.

⁸ WAPA's submission to the Parliamentary Portfolio Committee on Telecommunications and Postal Services, enquiry on the cost to communicate, 13 September 2016.

⁹ <https://ispa.org.za/membership/list-of-members/>

3.3 UPTAKE AND USAGE OF ICTs BY SMMEs

ICTs increase efficiency, provide access to new markets or services, create new opportunities for income generation, improve governance and give people a voice. Effective access to ICTs, particularly the internet and mobile networks can allow impoverished people around the world to access banking, medical services, etc. Moreover, effective application of ICTs to business fosters growth, development and competitiveness. The number of SMMEs using ICT tools in their enterprises has risen considerably, indicated by the penetration of end-user devices such as mobile phones, tablets, etc. The use of emerging technologies such as WhatsApp, Facebook and other social media has been phenomenal.

Very few companies are undertaking surveys in the SMME space. So far, World Wide Worx is one prominent company that has undertaken surveys to determine uptake and usage of ICTs by SMMEs. World Wide Worx's Survey conducted in January 2012, found that there is a strong relationship between being online and being competitive, profitable and sustainable. The results revealed that 79% of SMMEs with a website reported profitability, whereas only 59% of SMMEs without a website reported the same.¹⁰ In 2015, the company further conducted a survey to determine the levels of uptake of cloud computing by small enterprises in South Africa. It found that the number of SMMEs using cloud services in 2015 jumped by 10% up to 39% from 2014¹¹. 47% of SMMEs said that they made use of online backups, while 37% utilised online accounting, 27% used an online project management service and 25% had an online customer relationship management (CRM) solution.

However, the Survey also found that there is disconnect between what SMMEs consider to be cloud services and the actual cloud based services that many of them are using, indicating that there is lack of understanding about what the cloud really is and what services form part of it.

It becomes critical for government to prioritise issues pertaining to the diffusion of ICTs by small enterprises. With the advent of the 4th Industrial Revolution, South African enterprises would need to quickly adapt to change, or they will miss out on opportunities brought by these changes. This strategy also outlines the strategic interventions to further increase the level of uptake and usage of ICTs by SMMEs across the range of all sectors of the economy.

¹⁰ <https://bizconnect.standardbank.co.za/sector-news/general-business/em1-bringing-smes-online.aspx>

¹¹ World Wide Worx: SME Survey 2015

4. WHAT IS AN ICT SMME

The term SMMEs is used to denote Small, Micro and Medium Enterprises. Different countries use different definitions for SMMEs based on their level of development. However, the commonly used measures are total number of employees and annual turnover.

In the South African context, there is currently lack of alignment in the definitions of SMMEs by various legislative instruments. For example, section 1 of the National Small Business Development Act (NSB Act) of 1996 as amended by the National Small Business Amendment Acts of 2003 and 2004, defines SMMEs based on the number of employees and annual turnover in the main.

Small business is defined as “*a separate and distinct business entity, including co-operative enterprises and non-governmental organisations, managed by one owner or more which, including its branches or subsidiaries, if any, is predominantly carried on in any sector or sub sector of the economy mentioned in Column I of the Schedule*”.

The Act further classifies SMMEs into 5 categories being survivalist enterprise, micro enterprise, very small enterprise, small enterprise and medium enterprises. Table 1 below provides the annual turnover threshold and number of employees for each category of SMMEs.

Table 1: Broad definitions of SMMEs in the National Small Business Act

Enterprise Size	Annual Turnover (SA Rand)	Number of employees
Medium	Less than R4 million to R50 million	Fewer than 100 to 200 employees
Small	Less than R2 million to R25 Million	Less than 50 employees
Very small	Less than R200 000 to R500 000	Fewer than 10 to 20 employees
Micro	Less than R150 000	Less than 5
Survivalist	Operate in the informal economy. Income they generate is below the poverty line.	

As mentioned earlier, there is some inconsistency between the NSB Act definition and the Amended BEE Codes. Under the amended codes, the annual total revenue threshold for Exempt Micro Enterprises (EMEs) ranges from R5 million to R10 million, and a Qualifying Small Enterprise (QSE) qualifies within the R10-R50 million bracket. This Strategy will therefore adopt the SMME definition as currently outlined in the National Small Business Amendment Act of 2004.

4.1 DEFINITION OF AN ICT SMME

This Strategy therefore defines an **ICT SMME** as an SMME (in line with the NSB Act 2004) that is operating within the ICT sector, either as an ICT service provider, software and content developer or electronics and hardware manufacturer.

This includes new business activities brought about by the advent of the fourth industrial revolution (e.g., artificial intelligence, big data, robotics, etc.).

5. THE ICT SMME SUPPORT STRATEGY FORMULATION PROCESS

In the process of developing the Strategy, the DTPS adopted an inclusive, robust and consultative approach, which included hosting targeted ICT SMME workshops, publication of the draft Strategy, conducting bilateral meetings with key stakeholders and conducting a study on the ICT industry value chain.

The purpose of this approach was to understand the nature of SMMEs in the ICT sector, the difficulties they face as well as the kind of support they require to make them competitive and contribute to the country's priorities. This section therefore outlines the challenges affecting the ICT SMMEs and the ICT industry value chain analysis, focusing mainly on Telecommunications and Information Technology areas.

5.1 CHALLENGES AFFECTING ICT SMMEs

SMMEs across all sectors of the economy experiences several challenges in doing business. The ICT sector is no different, in addition to general challenges experienced by all SMMEs, SMMEs in the ICT sector also experiences sector specific constraints. The failure of new and existing South African businesses is a topic that has been discussed and debated for years. According to a study by the Small Enterprise Development Agency (SEDA: 2007), South Africa has one of the highest failure rates of new SMMEs in the world, at an estimated 75%. Research undertaken by the Department, augmented by consultative sessions with ICT SMME stakeholders point to a combination of sector specific and other cross-cutting challenges, as inhibiting factors to the growth and development of small enterprises in the sector. These are fully delineated below:

Highly Concentrated ICT Market

The current market structure of the ICT sector, particularly in the Telecommunications and IT areas, is highly concentrated and largely dominated by a few major players. This market structure poses as a barrier to entry and growth of the ICT SMME sector. Moreover, high capital expenditure requirements for deploying broadband infrastructure continues to limit the involvement of small players in this segment of the ICT value chain. Most SMMEs are forced to sub-contract with major operators in the rollout and deployment of ICT infrastructure.

Spectrum is an important enabler for entry and effective participation in the telecommunications sector. However, as mentioned in the National ICT Integrated White Paper Policy (2016), the current model for spectrum allocation is not progressive as it further perpetuates dominance and is an inhibitor to potential entry of ICT small enterprises. It is estimated that over 400¹² companies have been licensed in the sector, however, high demand spectrum is held by few operators. At the 2015 ICT SMME Workshop, stakeholders proposed that new spectrum allocation mechanisms need to show auditable demonstration of SMME and Broad Based Back Economic Empowerment (B-BBEE) support, as a pre-requisite for network operators to qualify for 4G spectrum allocation processes. The National ICT Integrated White Paper Policy that was approved by Cabinet in 2016 has introduced a new National Frequency Spectrum Policy regime that addresses the limitations around accessing the frequency spectrum.

¹² National integrated ICT policy White Paper, 28 September 2016

High Cost to Communicate

The majority of South Africans use mobile broadband as their primary mode of connecting to the Internet. More importantly, there has been a major shift from voice to data usage, driven largely by the Over-the-Top (OTT) services and increased smartphones and tablets penetration.

However, unaffordable high prices and prohibitive costs to communicate especially on data, impacts negatively on the uptake and usage of ICTs by SMMEs. In its presentation to the Portfolio Committee on Telecommunications and Postal Services, the DTPS indicated that operators with significant market power charge higher data rates. Therefore, there is an indication that ineffective competition exists in broadband markets, which necessitate regulations to ensure the reduction of data rates¹³. High cost to communicate affects the ability of SMMEs to provide services and to use ICTs.

Skewed deployment of Infrastructure

The skewed deployment of duplicated infrastructure, favoring urban areas to the detriment of rural areas, impacts negatively on the development of rural ICT SMMEs. According to the latest study by Small Business Development Agency (SEDA) (2016)¹⁴ lack of access to physical infrastructure is a key obstacle to business growth and significantly increases the cost of doing business. The study further states that ease of access to communication infrastructure, utilities and transport, land or space at affordable prices can be instrumental to supporting new businesses. It then becomes critical for infrastructure services to reach all segments of society- such as the poorest areas and rural areas, if government is to enable SMMEs of different sizes and from all areas to participate in the economy.

The roll-out or extension of robust and reliable broadband infrastructure is critical, for government to unlock the potential of ICT SMMEs, including rural women entrepreneurs. As indicated above, infrastructure roll-out has focussed mainly in urban areas and cities, to the detriment of small towns and rural communities. In addition, ICT incubation hubs, a critical enabler for ICT SMMEs, only exist in large economic agglomeration provinces such as Gauteng, KwaZulu Natal and Western Cape, where a lot of industrialisation takes place and none in Mpumalanga, Limpopo, Northern Cape and North West Province, for example.

Inhibiting Policy and Regulatory environment

There is a call for government to review policy and regulation to build an enabling environment that provides ICT SMMEs access to sector specific incentives and funding instruments, and promotes research, development and technological innovation. During the ICT SMME workshop (2015), stakeholders alluded to the need for government to align policies and regulations to promote development of viable small businesses.

The prevailing contradictions in the B-BBEE policy and National Small Business Act on the definition and threshold for SMMEs have been highlighted as a challenge. In terms of the B-BBEE Codes of Good Practice, SMMEs are classified as enterprises with a turnover of R50 million and below, per annum. On the other hand, the National Small Business Act which also classifies SMMEs according to their sectors, set a threshold of R26 million for SMMEs operating in the ICT sector. This causes uncertainty in the definition of SMMEs.

¹³ Department of Telecommunications and Postal Service's presentation to the Parliamentary Portfolio Committee on Telecommunications and Postal Services, 20 September 2016.

¹⁴ The Small, Medium and Micro Sector of South Africa: Research Commissioned by the Small Enterprise Development Agency: Bureau for Economic Research, January 2016.

Intellectual Property

In a knowledge-driven economy, Intellectual Property (IP) is a key consideration in day-to-day business decisions. However, many ICT SMMEs are unaware of the importance of protecting their IP. New products, brands, applications and creative designs are developed for the ICT market and are the result of continuous human innovation and creativity. SMMEs are often the driving force behind such innovations. Their innovative and creative capacity, however, is not always fully exploited as many of them are not aware of the intellectual property system or the protection it can provide for their innovations. The exorbitant legal costs associated with the preparations of documentation in the process of protecting IP has been raised as an inhibitor for potential innovation entrepreneurs. This challenge was vehemently raised by techno-preneurs during the consultative sessions and requires attention. The White Paper also identified the need to introduce enabling Intellectual Property mechanism such as the Utility Model, in order to enhance innovation and entrepreneurship development in the sector.

Limited Commercialisation of Innovation

Commercialization is the process of turning an idea or innovation into a useful product or service. According to the study conducted by Ramika (2016) commercialization is at the intersection of innovation and entrepreneurship¹⁵. Research conducted by SiMODiSA found that one of the constraints hindering the growth of start-up and scale-up businesses in South Africa is limited commercialisation of innovation in universities. There is a lot of innovation that takes place in South Africa's Universities, however most of these inventions are not commercialized into useful products and services¹⁶.

There is also lack of appropriate incentive schemes to encourage university researchers to go beyond the R&D phase to realise a higher nett innovation output from the higher education sector and the ultimate commercialisation of innovation. This therefore has adverse effects in the ability, the drive and incentives for SMMEs to innovate.

SMME Constraints in Access to Finance

According to an Organisation for Economic Co-operation and Development (OECD) report (2004), SMMEs are by far the largest group of customers for commercial banks in any economy. However, loans extended to SMMEs are often limited to very short periods, thereby ruling out financing of any sizable investments. Moreover, due to high perceived risks in SMME loans, access to competitive interest rates may also be limited¹⁷.

In most instances, the prerequisite for securing start-up capital is the presentation of bankable business plans. However, considering the low level of entrepreneurial competency, most aspiring entrepreneurs are unable to develop acceptable and viable business concepts. In addition, the need for collateral by private funders is considered a major barrier to enterprise development. One pertinent concern that is always raised by small enterprises, is the lack of an ICT sector specific funding mechanism and incentives.

The challenge of access to finance for ICT SMMEs is further worsened by the fact that funders do not seem to understand the sector itself. In most instances, ICT concepts may not produce tangible gadgets, but rather, software or an application, which is critical for the operation of hardware.

¹⁵ Ramika, B. Study on the Commercialization of University Innovation in South Africa, 2016.

¹⁶ SiMODiSA identifies key challenges to SME development in SA, September 8, 2015. <http://www.mynewsroom.co.za/simodisa-identifies-key-challenges-to-sme-development-in-sa/>

¹⁷ 2004 OECD Conference of Ministers Responsible for small and medium sized enterprises, Istanbul, Turkey, 3-5 June 2004.

However, because it is not a physical product (e.g., operating system) funders are hesitant to provide the required financial support. It becomes critical for Development Finance Institutions (DFIs) to consider different funding options for SMMEs in the ICT sector. According to SiMODiSA¹⁸, South Africa is lagging behind, particularly in the area of early stage angel investors. Moreover, the country's Venture Capitalist (VC) market is still in its infancy.

The inability of SMMEs to provide relevant information due to lack of accounting records, inadequate financial statements or business plans make it difficult for creditors and investors to assess the creditworthiness of potential SMMEs proposals.

Market Access

Market access is essential for SMMEs and plays an important role in promoting and sustaining a business. The inability of most SMMEs to access markets for their goods and services continues to be amongst the top challenges. It is argued that potential clients perceive small businesses as lacking the ability to deliver quality services and are unable to satisfy more than one critical project concurrently. Often, larger companies are preferred for their clout in the industry and name/brand recognition. Some ICT related services and products are highly regulated and service providers are expected to meet certain standards, in line with International Telecommunications Union (ITU) and South Africa Bureau of Standard requirements. It becomes critical that interventions to create awareness on issues of quality of standards and SABS requirements amongst SMMEs are implemented.

Most SMMEs do not have a website and this disadvantages them against their competitors, limiting their market scope. Online presence is an effective marketing tool to improve business operation which in turn enhances competition, increases profitability and sustainability. Today's customers are more likely to look up a business on social media or Google. The more small businesses are online, the more customers they will be able to reach.

Business Skills required for SMMEs

Enterprises requires crucial skills such as business administration and management, financial management and legal skills, in addition to technical skills, for them to operate effectively and successfully. Most SMMEs often cannot afford to appoint legal teams that looks after legal security and compliance issues of the business as well as accountants. This therefore forces them to outsource and the costs of outsourcing often remains a barrier. A call for assistance by government was made by SMMEs, so as to enable them to track their financial performance continuously and draw necessary compliance reports as and when they are required.

Procurement issues

Payment of invoices

Small businesses continue to raise the lack of compliance to the 30 day payment window for SMMEs by government as a major challenge. Business owners, including small enterprises who supply the government with goods and services, struggle to get paid timeously. A post-Cabinet statement of 15 April 2015 provides a comparative assessment of national Departments between January 2013 to October 2013 and January 2014 to October 2014. It shows a 39% improvement

¹⁸ SiMODiSA identifies key challenges to SME development in SA, September 8, 2015. <http://www.mynewsroom.co.za/simodisa-identifies-key-challenges-to-sme-development-in-sa/>

on the average number of invoices paid within 30 days and a 32% improvement on the number of average invoices that were paid after the 30 days. However, more efforts are needed to ensure timeous processing of payments for small businesses. In April 2015, Cabinet approved the establishment of a special unit that will be tasked with assisting national and provincial departments with making payment to businesses within 30 days of receiving an invoice¹⁹.

Sub-Contracting

The challenges pertaining to sub-contracting and how it negatively impact on the viability of ICT SMMEs has been raised sharply during the consultation process. Sub-contracting is considered as an entry point to the business world for ICT start-ups. This mechanism is supposed to enable small enterprises to build their businesses, however other SMMEs state that they have been victims of this system.

They argued that some larger companies that are financially established get tenders/contracts directly from other established companies, then appoint a sub-contractor (SMME) and transfers all risks and responsibilities associated with the project such as health and safety, hiring employees and securing of resources required for the project.

Then sometimes once the project has been completed and compensation to the sub-contractor is due, the primary contractor disappears without settling the sub-contractor's invoices. This is said to be a norm, practiced by well-known big brands. A request was therefore made for government to regulate sub-contracting or develop guidelines so as to help protect the emerging SMMEs.

Compliance costs

High compliance costs were also mentioned as a key challenge hampering the development of SMMEs. For example, some SMMEs argued that the amount of money required for one to have a device ICASA approved is exorbitant. Type approval of electronic communications equipment is one of the basic compliance obligations set out in the legislation governing electronic communications. The rationale of the requirement is to safeguard the quality of networks by ensuring they are not damaged by substandard equipment or equipment that does not comply with specified technical standards. Examples of barriers that were identified include the process and costs associated with licensing of imported repeaters, which are devices used to boost the signal levels for all mobile operators.

Compliance with the *Private Security Industry Regulatory Authority*, especially for SMMEs active in the installation of CCTV cameras has been raised as a challenge. Generally, all advertised tenders for CCTV cameras & Security electronics requires one to be PSIRA approved.

This implies that technicians who are merely installing security devices are obliged to register as Security Officers, thus compelled to pay monthly obligation fees to PSIRA. This, it is argued, muddles with the business's area of specialization, considering that it installs security devices and, does not provide physical security services, therefore presenting no justification for technicians to incur monthly PSIRA fees, since they are not security officers.

¹⁹ Statement of Cabinet Meeting of 15 April 2015.

Lack of Coordination

There is a need to have a solid and functional coordination mechanism to drive and monitor ICT SMME related programmes and interventions. Lack of a central comprehensive database for ICT SMMEs also disempowers government from developing evidence based policies and interventions for the sector.

Given the nature of this sector and the challenges faced, it is important to have government led interventions and support mechanisms to upgrade and strengthen this sector to meet the expectations of the country. This strategy aims to unlock the potential of ICT SMMEs, innovators, entrepreneurs, and start-ups in contributing to the growth and development of the sector.

This will be achieved through strategic partnerships with other public and private sector stakeholders to provide a support network that brings together entrepreneurship support agencies, innovators, regulatory agencies, academia, financiers and established companies.

This strategy is two pronged: (i) addressing barriers to the development and growth of ICT SMMEs and (ii) increasing the levels of uptake and usage of ICTs by SMMEs across economic sectors.

5.2 ICT SECTOR VALUE CHAIN ANALYSIS

This section provides a thorough assessment of the ICT Industry Value Chain, prioritising the Telecommunications and Information Technology (IT) sub-sectors of the ICT sector. It aims at identifying opportunities for ICT SMMEs so as to devise appropriate strategic interventions to develop the ICT SMMEs. A value chain is the sequence of production, or value adding activities leading to and supporting end users of a particular product²⁰. It is, in other words, the chain of activities required to bring a product from its conception to its final consumption. The ICTs can be disaggregated into ICT producing activities and ICT using activities. It is important to address both with a view to establishing their significance and draw strategy implications on each of the two categories.

The analysis of the value chain for "ICT" must be examined by sub-sector, due to the significant differences between them. In the following sections, we describe the elements that comprise the ICT industry. The numbers describing the size and shape of the Telecommunications and IT sub-sectors are drawn from the MICT SETA Sector Skills Plan 2016 to 2021 (MICT SETA, 2015), the ICASA Report on the State of the South African ICT Sector 2016 (BMI-Techknowledge, 2016) and other sources as identified.

It must be noted that policy and regulation interventions are not clearly delineated by sub-sector, mainly due to overlapping responsibilities of some of the stakeholders. For example, the MICT SETA identifies Advertising, Film & Electronic Media, Electronics, Information Technology and Telecommunications as its sub-sectors. ICASA regulates the communications, broadcasting and postal services sub-sectors. DTI drives industrial policy and influences the film and electronics industries through its incentive programmes. The Department of Communications scope includes development of media and control over the SABC, a major player in the film and electronic media sector. DTPS is responsible for National ICT Policy, the scope of which includes computing, information technology, and telecommunications technology, the Internet and postal services.

For the purposes of this analysis, taking into consideration the mandate of the Department of Telecommunications and Postal Services, the focus is on telecommunications and information

²⁰ McCormick & Onjala, Methodology for Value Chain Analysis in ICT Industry: Framework for the Study of Africa. 2007

technology, though aspects of the Audio-Visual (Broadcasting sector) are reflected in the analysis of opportunities in the ICT Value Chain later in the Strategy.

5.2.1 Telecommunications

MICT SETA (MICT SETA, 2015) identified 2 022 telecommunications employers in 2015, of which 45 were “large” (150+ employees), 82 “medium” (50-149 employees) and 1895 “small” (<50 employees). Many of the companies are engaged in all the activities including mobile, fixed line and Internet services.

MICT SETA reports employee numbers as 38 171 in electronics, 141 670 in ICT and 58 646 in telecommunications. Quoting StatsSA, ICASA (BMI-Techknowledge, 2016) says 103 317 people were employed in the telecommunications sector in Q3, 2015. However, later in the same report (page 17), ICASA states that only 30 519 people were employed in the telecommunications sector as at 30 September 2015 (of which 37% are female).

Statistics South Africa (StatsSA) (Statistics South Africa, 2015) quantifies the 2012 domestic output of telecommunications services at R160, 784 billion, with compensation of employees at R18, 677 billion. Contribution to GDP is indicated as R64, 8 billion (2% of GDP).

The major elements comprising the current structure of the telecommunications sub-sector are indicated below, with examples of companies and other entities operating or influencing the sub-sector.

Quoting StatsSA and ICASA, BMI-Techknowledge (2016) report indicate that 103 317 people were employed in the telecommunications sector in Quarter 3, 2015. However, later in the same report (page 17), ICASA states that only 30 519 people were employed in the telecommunications sector as at 30 September 2015 (of which 37% are female).

StatsSA (Statistics South Africa, 2015) quantifies the 2012 domestic output of telecommunications services at R160, 784 billion, with compensation of employees at R18, 677 billion. Contribution to GDP is indicated as R64, 8 billion (2% of GDP). This reveals lack of alignment in reporting ICT statistics.

The major elements comprising the current structure of the telecommunications sub-sector are indicated below, with examples of companies and other entities operating or influencing the sub-sector.

5.2.1.1 Infrastructure

This segment of the sector, mainly relates to fibre, copper, wireless and satellite infrastructure. Most of the original copper wire infrastructure was installed by Telkom. All of the major telecommunications operators have invested in fibre and wireless infrastructure. There are specialist infrastructure providers, many laying fibre-optic cables for use by other entities, such as FibreCo, Dark Fibre Africa and Broadband Infraco. These links are extended beyond South Africa's borders by submarine cable operators, such as SEACOM, EASSy and WACS. There are several companies offering satellite links capable of handling Internet, data, LAN and voice/fax communications. Examples: Satcomms, Q-Kon and Radio Holland

Multinational, international, national, local operators: using their own or others' infrastructure, telecommunications operators provide the services that enable users to connect to the

networks. The scale of operations may be global or local, with interconnection agreements to allow users to reach as far as they wish.

Most successful telecommunications companies operate at a large scale, to spread the capital and operating costs across the largest number of users. At multinational level, Vodacom (Vodafone) is a prime example. Internationally, MTN has a presence across Africa and the Middle East. Nationally, Cell-C, Telkom and Neotel are well known, with an increasing visibility from newer operators like Vox Telecom.

Attempts to create smaller operators to provide services in under-serviced areas have failed, largely due to the disproportionate.

5.2.1.2 *Wholesale vs Retail*

Although the big national/multinational operators generally provide the full range of components of the service, from core infrastructure to consumer connections, there is a growing trend to separate the wholesale network service from the consumer (retail) services. This is seen in Telkom's Openserv and in the National ICT Policy's Wireless Open Access Network. This is really the next step in the logical development of networks, where interconnection and roaming agreements avoided unnecessary duplication of cables and towers.

The retail telecommunications market reaches the consumers and provides the devices (handsets and other equipment), connections to one or more service providers, and the applications (apps) that add functionality to the service. Retail products and services are marketed direct from the major network operators, through specialist and general retail stores, through Internet cafes and on-line. There are many SMMEs operating in the retail market.

In addition to the voice/data services offered by the network operators, there are specialist Internet Service Providers (ISPs) and Wireless Internet Service Providers (WISPs). These companies focus on data connections using Internet Protocol (IP) across connections often supplied by a network operator (such as an ADSL line from Telkom). The WISP provides short range wireless connection to a base station which will have a broadband connection to a fixed line network. Typically, these ISPs provide web hosting and email services. Many, if not most, WISPs fall into the SMME category.

There are approximately 200 WISPs²¹ operating across South Africa (according to the Wireless Access Providers Association – WAPA), serving 300 000 clients. A common requirement for all service providers selling to end users is an effective billing system. The system must identify the device, its location, the type of connection, the service used and the amount of data and/or time consumed. It must also be capable of identifying time and location based special pricing packages.

To operate in this arena requires familiarity with local and international laws and regulations. The licensing of operators is essential to maintain orderly use of spectrum and maintenance of required standards for connectivity. Operators need to invest heavily in compliance with legislation intended to combat crime and to protect privacy.

²¹ Johannesburg Centre for Software Engineering: ICT Value Chain Analysis Report, 2016

South Africa must have the international links, whether they be cable or wireless and must also ensure the internal networks are compatible with international standards. In particular, allocation of radio frequency spectrum must be compatible with international norms to support mobility of users and to prevent interference with signals.

5.2.2 Information Technology

MICT SETA (MICT SETA, 2015) state that South Africa has a mature IT sector, with many international enterprises operating subsidiaries in the country. The same report, estimate that in 2014 the country spent over R100 billion on IT.

It indicate that there are (according to SARS) over 11 000 IT employers, 96% with less than 50 employees, and a further 2 800 electronics employers, with over 90% in the small category.

MICT SETA reports 2015 employee numbers as 38 171 in electronics, 141 670 in IT and 58 646 in telecommunications. Based on information from StatsSA, ICASA, the BMI-Techknowledge, 2016 report shows that in quarter 3 of 2015, 120 055 people were employed in the computer software and services sub-sector, 17 710 in the maintenance and repair of ICT equipment and 13 065 in ICT manufacturing²².

The current structure of the IT sub-sectors is as follows:

5.2.2.1 *Hardware (components and devices) – the electronics sub-sector*

The vast majority of IT hardware sold in South Africa is imported. Economies of scale achieved in overseas factories are difficult to replicate in a lower volume market with different labour force dynamics. Local assembly of imported components has produced TV sets and laptop computers. Specialisation in set-top boxes, avionics and vehicle electronics has created sustainable businesses.

5.2.2.2 *Software (operating systems and types of software vendor)*

Operating systems such as Windows, iOS/OSx and Android dominate the market (Microsoft, Apple and Google, respectively). Linux, in various flavours such as Ubuntu, is Open Source and offers lower operating costs. Application software may be off the shelf or bespoke.

- (i) Off the shelf software, such as office support, finance & accounting, payroll and human resources, is purchased “in a box” and included a licence fee for its use and future updates.
- (ii) Customised off the shelf software, on the other hand, is usually acquired by larger enterprises which adapt the standard software to suit their particular needs and to integrate it with other systems. Vendors include SAP, Oracle, Microsoft, among others.
- (iii) Bespoke software describes applications written to meet the requirements of a specific user and not available in the same form for other users. Independent software vendors may generate bespoke solutions for particular clients. Internal software development

²² Johannesburg Centre for Software Engineering: ICT Value Chain Analysis Report, 2016

teams will create specific solutions to meet an enterprise's needs, such as within a bank or mining house.

The current approaches to financing the ICT sector do not include non-infrastructure, yet important aspects of the ICT value chain, such as software and applications, are critical for South Africa to achieve a knowledge economy.

This challenge has been highlighted in the National integrated ICT Policy White Paper (2016), which states that funding interventions in the ICT sector should not be confined to hard infrastructure, but should be all encompassing to promote competitiveness throughout the ICT value chain. Therefore strategies to address this pertinent issue are critical, if the local software and applications market is to thrive.

5.2.2.3 *Data Centres, including the Internet and the Cloud*

The rapid proliferation of broadband networks (at least in the urban areas) has led to a dramatic increase in the use of shared facilities. Not all of this is new technology – the principle has been in use for decades. However, the combination of Internet Protocol and high speed communications has created economies of scale not previously available.

Data centres are massive data storage and computing facilities in a secure environment. They can be located anywhere and can be dedicated to one user or shared by many users. Teraco is a South African example. Cloud computing or cloud services are just expressions used to describe the ability for a user to access data storage and computing applications located on equipment not on their premises (and often not in their country). Effectively, it is outsourcing some or all of the enterprise or individual computing needs to external resources on a pay-per-use basis. The Internet provides the technology means for end users to interact with the data centres and with each other.

The White Paper raises concerns around the need to address the concentration of data centres in Gauteng, KwaZulu-Natal and Western Cape. It calls for the sector to encourage data centre distribution across the country, also encouraging the geographic distribution of specialised IT skills. It states that the ISP community substantially reflects past imbalances, and there is still a clear absence of players from previously disadvantaged backgrounds. This also requires government and industry to facilitate the participation of SMMEs, moving forward.

The Policy calls for government to further support new data centre entrants by utilising their services. In addition, the sector regulator will be directed to develop and implement strategies to widen participation in the ISP market, including collaborating with other government entities to increase demand for services offered by new entrants to the ISP market.

The global search market is largely dominated by Google, though other players with notable market share include Bing, Baidu and Yahoo. These search engines (with Baidu's exception) are popular in South Africa. There are also active topic and service-specific search engines e.g. booking.com and hotels.com. There are several South African search websites, but their market share is insignificant compared to global players.

In addition, the Internet browser market remains in the hands of international competitors, and South Africa does not play any active role in this area. Search engines normally generate revenue from indexing websites and paid-for ranking of websites and information.

5.2.2.4 *The “apps” environment, including Games and Gamification*

As with the growth in broadband networks, the proliferation of mobile devices has created a rapidly growing market for “apps” and games. The structure of the market enables a developer to create an application or game, package it for an operating system (or many operating systems) and sell it to end users (or give it away, supported by third party advertising). The Google Play Store and the Apple App Store are selling thousands of applications and games each day.

Businesses are adopting the apps and games route to develop end user interfaces to their enterprise systems. They are also examining the potential value of applying gamification principles to their business processes to achieve productivity gains and better user comprehension.

5.2.2.5 *Interoperability and Cybersecurity*

The growing demand for users to access their enterprise systems from anywhere at any time via any device has increased the need for the various systems to be “interoperable”, i.e. capable of sharing data and accessing it from any platform. There is a similar increase in the number of connections to enterprise systems and in the flow of data between them and the users. There has always been a body of people willing and able to subvert the operation of computer systems for criminal or malicious purposes.

The networks and data centres, together with the end-user devices, create myriad opportunities for criminal and others to break into systems for nefarious purposes. These factors have led to growth in the Cybersecurity industry, dealing with user identification and authentication, access control and malware prevention/eradication.

5.2.2.6 *IT Producer Enterprises and IT User Enterprises*

Information technology is pervasive. It is not a product that is produced by one enterprise and consumed by another. We can identify producer enterprises, i.e. companies that exist separately from their customers. They do make products and supply services that they sell externally, such as IBM, Microsoft and BCX.

We can also identify IT user enterprises that have no in-house ability to create or maintain IT products and services. They are entirely dependent on external suppliers for the technology they use. Most consumers and small businesses fall into this category. Many enterprises fall into a producer/user category, because they have internal resources that can create products and supply IT services. Most fintech companies are in this category, for example. This distinction is made to emphasise that the ICT Value Chain can exist within a non-ICT enterprise.

6. VISION OF THE STRATEGY

The vision of the ICT SMME Strategy is to create an enabling environment for ICT SMMEs in South Africa to be innovative, technology driven, sustainable and internationally competitive, contributing to job creation and economic growth by 2020.

7. STRATEGIC GOAL

To unlock the business opportunities and create an enabling business and administrative environment for SMMEs in the ICT sector to thrive and advance into successful and sustainable entities.

8. OBJECTIVES OF THE STRATEGY

The Strategy will support start-up ICT Small, Medium and Micro enterprises, strengthen existing enterprises and extend support programmes to potentially viable SMMEs. The objectives of the strategy are to:

- a) Facilitate the accelerated growth and entry of SMMEs (particularly youth and women entrepreneurs) in the ICT sector;
- b) Increase uptake and usage of ICTs by the South African nation as a whole, and especially by SMMEs across all sectors of the economy;
- c) Establish a coordinated and integrated planning mechanism for the development of ICT SMMEs within the broader national framework of SMME development across all economic and social sectors, with the principal aim of increasing uptake and usage of ICTs.

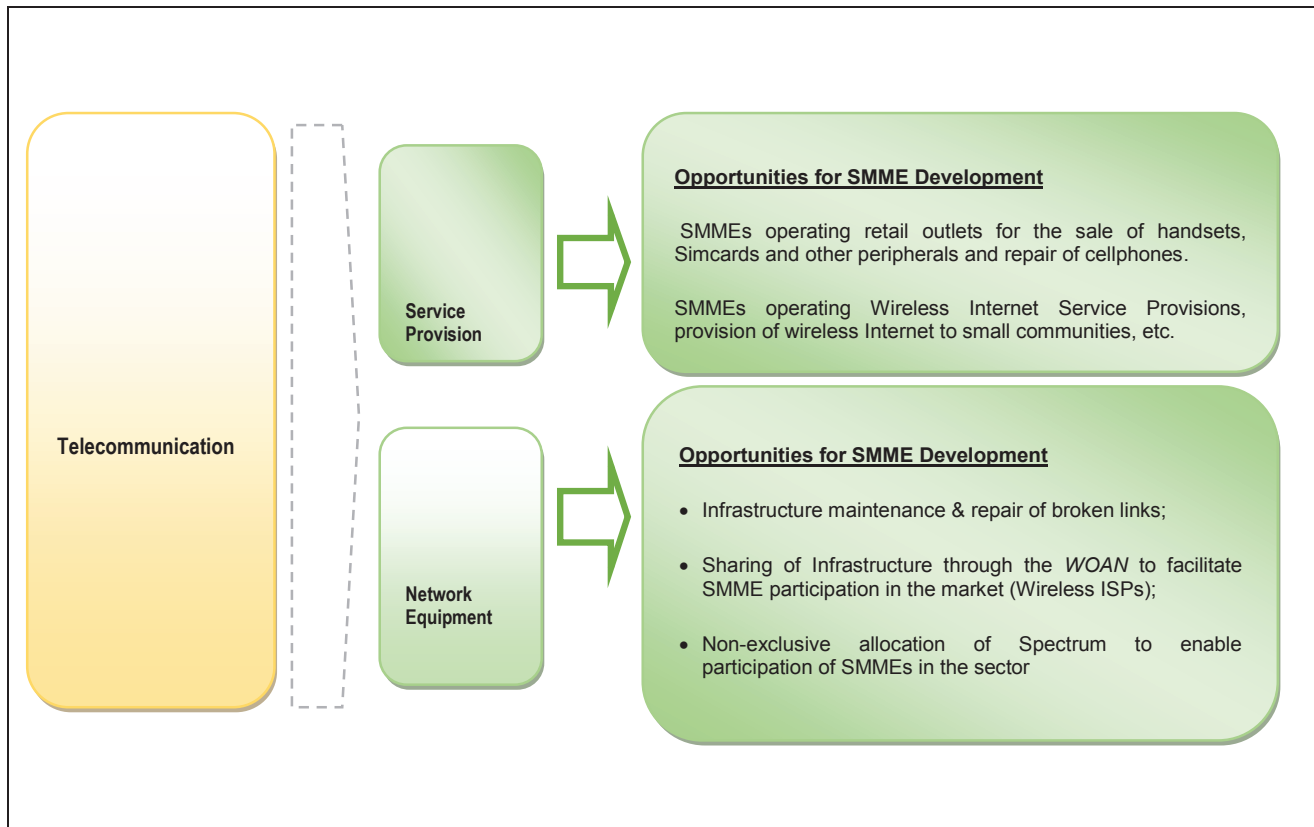
9. FINDINGS OF THE ICT SECTOR VALUE CHAIN ANALYSIS: IDENTIFYING OPPORTUNITIES

This section highlights the opportunities for SMME activities within the value chain discussed above. It will also identify the constraints inhibiting SMME involvement in the value chains, including policy and cost issues. This section forms the crux of the Strategy, as it would inform the strategies to unlock the potential of SMMEs in the ICT sector.

9.1 TELECOMMUNICATIONS

This value chain covers the provision of telecommunication services within a territory.

Figure 1: Telecommunications Value Chain



9.1.1 Network Infrastructure

This sub-sector covers resources and inputs required to create the network infrastructure. This includes laying cables, building exchange points and wireless towers. It also includes signing agreements for access to satellite and submarine cable networks. Operators providing retail services will also need agreements for the purchase of user equipment and to set up a retail outlet environment. The White paper proposes a Wireless Open Access Network (WOAN), which presents opportunities for SMMEs to access existing infrastructure at regulated prices and immediately compete in the provision of services.

Apart from enhanced competition downstream, the new policy enables small enterprises that could not venture into the highly capital intensive infrastructure layer of the market. SMMEs will have the opportunity to set-up Wireless Internet Service Provision enterprises, they could also partner with big players in the process of laying of cables and installation of "last mile" connection. The estimated initial setup cost for a WISP is R250 000, excluding erection of a tower and customer installations.

9.1.2 Service Provision

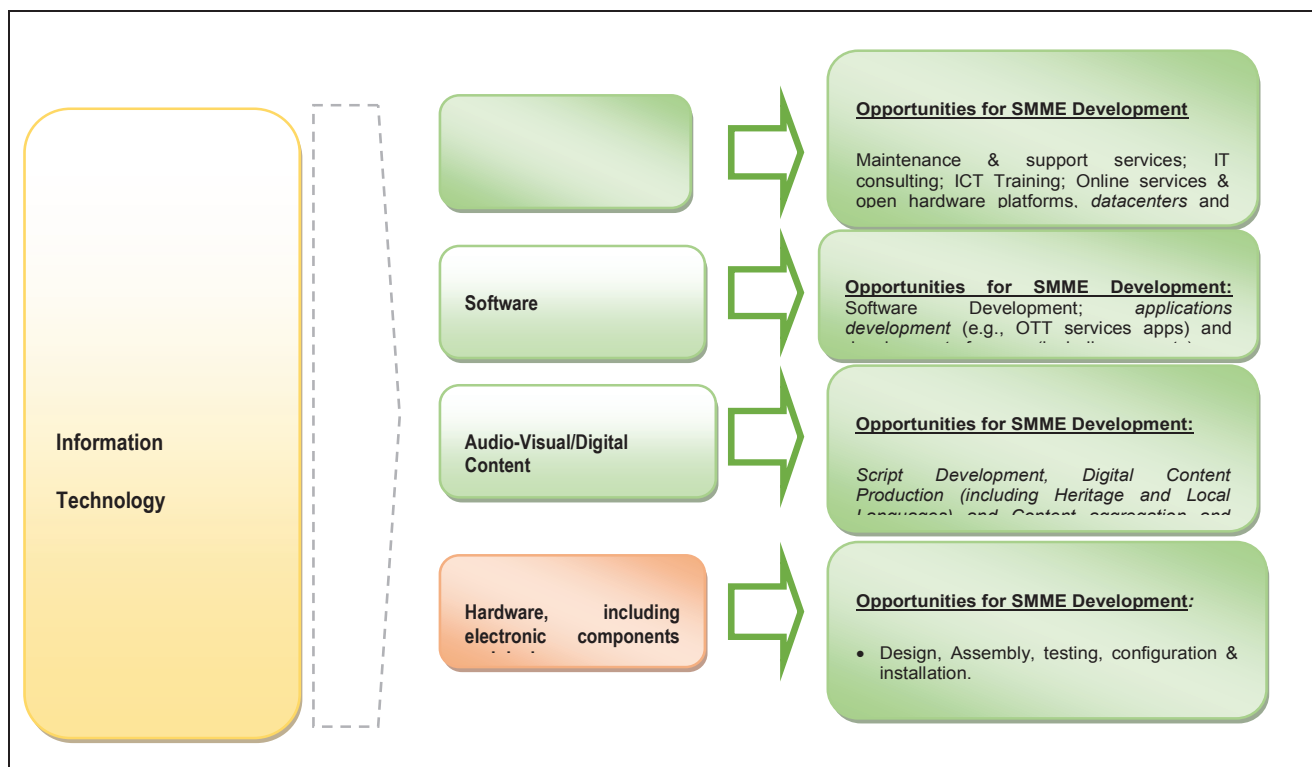
The output of this value chain is the provision of a telecommunications service to end-users with an acceptable Quality of Standard (QoS). The service scales from the individual user to the largest private or government enterprise and includes voice and data services. Users may contract directly with the operator or through a retail outlet or agency.

Therefore, SMMEs can provide value in the distribution channel by operating retail outlets for the sale of handsets and SIM cards. They can also operate WISPs, providing wireless Internet services to small communities. There is an ongoing requirement to maintain the infrastructure, repair broken links and replace end-user devices. Other opportunities are available to SMMEs with respect to this activity, through sub-contracting to the big operators and providing personal service to end-users.

9.2 INFORMATION TECHNOLOGY

In subsequent sections, sub-divisions of the IT sub-sector are identified. As with the telecommunications sector, opportunities and challenges are addressed based on those sub-divisions. Figure 2 below presents the structure of the IT sub-sector and reflect existing and new opportunities for SMMEs to take advantage of.

Figure 2: Information Technology Value Chain



9.2.1 *Hardware sub-sector (electronic components and devices)*

This sub-sector includes hardware and electronic components, devices and sub-assemblies sourced from suppliers. Most IT hardware components used in South Africa are imported. Components (such as integrated circuit chips) are seen as mass-produced commodities and economies of scale make it uneconomical to produce them locally. Components are sourced from international producers by local importers and local subsidiaries of multinational companies. Common components are imported in large quantities and held in local warehouses. Specialised components are imported in smaller quantities as required.

Local SMMEs can develop niche businesses around importing and supplying specialised components that are bought in numbers too small to be of interest to major suppliers. There is also scope to produce *special circuit boards or 3-D print* small quantities of specialised enclosures. However, through the provision of appropriate incentives, small ICT companies could be capacitated to manufacture affordable mobile devices and electronics components for distribution locally and in the African continent. Currently, South Africa imports the majority of hardware and various electronic products.

The local electronics component market is "tied up" by a small number of large distributors who have agreements with major international suppliers. *Financing and cash-flow are common inhibiting factors preventing SMMEs from entering this sub-sector.* Given appropriate support and incentives, SMMEs could effectively participate in the component space.

The design, assembly, testing and configuration and installation of hardware is typically done in South Africa by local subsidiaries of multi-nationals or by specialist local companies. South Africa has world-class design and assembly capability. *SMMEs with the correct level of high-end technical skills have always operated in this area* and more opportunities could be opened.

9.2.2 *Digital Content*

The digital content sub-sector, presents a lot of opportunities for SMMEs, considering the proliferation of social media and planned migration to digital broadcasting. The majority of online content consumed by South Africans originates from America. It then becomes critical for government to provide entrepreneurs with the necessary tools and infrastructure to enable them to develop local content and aggregate it for distribution purposes, e.g., Digital Content Development Incubation Centres. The African region also presents an opportunity for distribution of content.

Government, through the Department of Communications, is in the process of developing an Audio-Visual (Broadcasting) and Digital Content Development Strategy to facilitate the development of entrepreneurs in this space. The objective is to enhance skills development in script writing/development, digital content production (including South Africa heritage content and local languages), content aggregation and distribution; owning and managing online broadcasting platforms. All these are opportunities that are available for small players in the Audio-Visual and Digital Content market.²³

²³ Draft South African Audio-Visual and Digital Content Development Strategy, 05 May 2015

9.2.3 Software Products – operating systems and packages

According to the National integrated ICT Policy Green Paper (2014), software developers are in demand across the ICT and business sectors. Gartner, an international research group rated South Africa as one of its top 30-software development outsourcing destinations, alongside Israel, the Middle East, Australia and India²⁴.

Operating systems and packages are supplied either on DVD or USB disks or (more commonly nowadays) downloaded via the Internet. For complex software products a large number of configuration components are required to build an operating system or software package. Most operating systems are sourced from developers and companies outside of South Africa. Although there are some notable exceptions, most packaged software - particularly large packages - are produced abroad.

The barrier to entry with respect to "packaged software" is very high. *There is very little scope for local SMMEs to become developers or distributors of packaged software.* The "exception" was Mark Shuttleworth's Thawte Software, sold to Verisign (US). There are a number of Independent Software Vendors (ISVs) in South Africa which have successfully created "packaged software" for local and international clients.

Local SMMEs could take advantage of opportunities in software maintenance, support and upgrade services. Government also needs to support the development of local software, considering that the required skills are produced locally. As mentioned earlier, deploying critical infrastructure such as incubation hubs is key for the local software market to thrive.

9.2.4 9.2.3 Games and Apps

Linked to the software development sub-sector of the value chain are games and applications. When developing both Apps and Games the most important input is to define requirements. In some cases there is a specific customer who specifies these requirements. In other cases Apps and Games are developed as innovative products that will need to be marketed and sold. Requirements analysis would almost always be done by the developer. There is huge scope for local SMMEs to become involved in developing Apps and Games that meet local needs and/or appeal to the South African and African markets. There are very few constraints and a very low barrier to entry. The only need is to have people available with the correct range of skills.

The software development lifecycle transforms requirements into software systems. The steps in the lifecycle include architecture, design, coding, testing and documentation. South Africa has world-class software development capabilities and SMMEs should build on this tradition and reputation with respect to App and Games development.

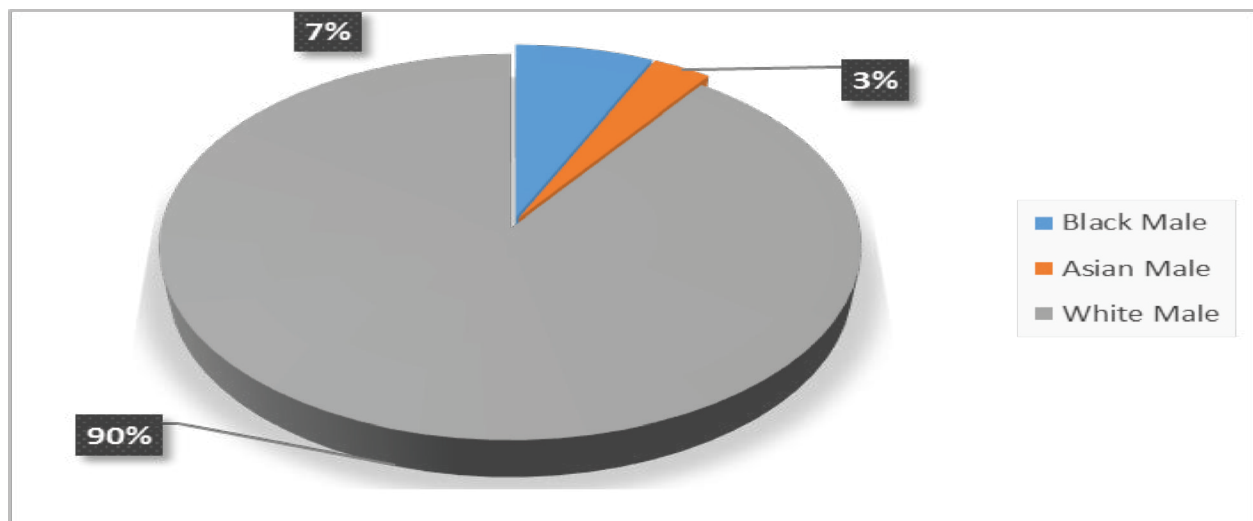
Local "App Stores" are necessary to ensure that users can discover and download local Apps and Games. Having a local "App Store" would facilitate distribution of local SMME-developed content. The most popular "App Stores" are owned by Google, Apple and Microsoft. This control inhibits local participation in this critical distribution channel. Agreements must be reached with these international vendors to improve access by SMMEs to these channels. "Servicing" of Apps and Games is done via the Internet by making new versions available for download. The SMME responsible for developing the App or Game would be responsible for "servicing".

²⁴ National Integrated ICT Policy Green Paper, 24 January 2014. Government Notice No: 37261

Size of SA's gaming industry

Research indicates that the South African gaming industry has begun to mature. Annual surveys undertaken by Make Games South Africa²⁵, found that there were 42 active games studios in 2013, 40 in 2014 and 31 in 2015. Cape Town is home to the highest number of full-time game development studios in South Africa, with 17, followed by Johannesburg with 6 for and Durban, 2. Most studios are controlled by white males as reflected on Figure 3.

Figure 3: SA's Gaming Industry



This reveals racial and gender imbalance as effectively 90% of the industry is controlled by predominately white men. The outcomes of the research by Make Games South Africa also shows that from a gender perspective, no active game development studios are owned by women. This calls for government to create an enabling environment for entry and participation of South African across races in the gaming industry.

The gaming industry has the potential to contribute in government strides of addressing the challenge of youth unemployment. According to a research report by Serious About Games²⁶ (SAG), the global, games industry is a \$100 billion industry (bigger than film or music) with approximately 2 billion people playing games on different devices. The report further indicate that South Africa's game development industry increased its revenue from R29.7-million in 2014 to R100-million in 2016, boasted by 103 commercial releases that year. However, the Western Cape has consistently generated much of the income.

²⁵ Interactive Entertainment South Africa Industry Survey – 2016, by Make Games South Africa.

²⁶ The Serious About Games initiative was launched in 2016 by the Cape Innovation and Technology Initiative (CiTi), supported by Interactive Entertainment South Africa (IESA), Cape Craft and Design Institute (CCDI), 67games and funded by the Western Cape Provincial Government's Department of Economic Development and Tourism (DEDAT)

9.2.5 *e-Sport Market Opportunities*

The development of the gaming industry also facilitated the start of an e-sport market. According to NG and Blundy (2017), *E-sports, or electronic sport, are multi-player video game tournaments where gamers compete for hefty cash prizes*²⁷. During eSports competition, gamers battle against each other on a particular game, with fans watching on screens. According to the same publication, global returns in the e-sport industry is likely to grow to US\$1, 5 billion by 2020, as brand investment doubles.

According to Channel24, the market value of South African e-Sport is estimated to be below R20 million²⁸. It is critical for government to accelerate the development of this industry, which will further add impetus on the growth of the local games market as locally relevant games are developed.

9.2.6 *Data Centre and Cloud Computing (emerging opportunities)*

In this value chain the input can be seen as setting up the necessary infrastructure in South Africa. The "Telecommunications" value chain is closely associated with this one. Establishing data centres and the communications infrastructure to access them is the most important "input" in this value chain. There is scope for SMME involvement in setting up data centres and cloud computing facilities. Though these facilities are complex, capital intensive, SMMEs could partner with larger players in the sector, e.g., SITA.

Once the infrastructure has been set-up, there are a wide range of services and products available on top of the core infrastructure. SMMEs have tremendous opportunities to leverage cloud infrastructure to provide a range of specialised and niche offerings to both large and small customers. This is a new and emerging area of business, and SMMEs should develop innovative solutions and business models. As with any new business model, cloud computing is not well understood by potential customers. SMMEs wishing to operate in this area will need to work hard to sell new concepts to sceptical customers.

Well trained, highly motivated and suitably incentivised SMMEs can play a very positive role in the customer-facing activities of this value chain. There is considerable scope for SMMEs to work together with larger players as part of the marketing and sales process. Possibilities of exploring potential opportunities that SITA can offer to SMMEs wishing to utilise the SITA data centres would also be explored through this strategy.

9.2.7 *Interoperability and Cybersecurity*

This value chain covers the integration of IT systems - including databases - and ensuring adequate levels of cyber security. A typical example of this is the BankservAfrica system which supports the interoperability and security of transactions between South Africa's major banks. Inputs to this value chain are agreements around standards relating to aspects such as metadata, message structures and operational processes. There is very little scope for SMME involvement in this activity.

²⁷ South China Monitoring post, volume 73, No 208, 29 July 2017.

²⁸ Grethe Kemp: The rise of e-Sport in South Africa. Channel24, August 2017.

However, there is an ongoing requirement to maintain software, hardware and security infrastructure. Some niche consulting opportunities are available to SMMEs, with respect to this activity. This requires high levels of skills though.

9.3 OTHER BUSINESS OPPORTUNITIES IN THE PUBLIC SECTOR

During the ICT Policy Review consultation process, stakeholders raised the importance of government being the first client for products and services developed or provided by SMMEs, considering the annual budget it uses to deliver support services to small business. This will instil confidence in other potential clients, especially private sector. As part of its responsibility of ensuring the realisation of an inclusive information society and achieving universal access, government has continued to roll-out infrastructure and ICT services in schools and other public facilities.

Therefore, the need to ensure continuous maintenance of this infrastructure as well as enabling teachers and nurses (and other government employees) to use ICTs deployed in their facilities cannot be overemphasised.

This therefore presents an opportunity which ICT SMMEs could take advantage of. The prioritisation of small enterprises in the procurement of these services could be accelerated once the government policy of setting-aside minimum of 30% of its procurement to SMMEs has been approved. ICT SMMEs could, amongst others:

- Develop applications for use in the learning environment,
- Be contracted to deploy computers and other learning tools at schools and health centres,
- Provide continuous maintenance and support to computer labs and;
- Capacitate teachers and health workers to effectively use technology to deliver services.

The analysis of the ICT Value chain has revealed both areas of opportunities and challenges for small businesses. It is evident from the discussion above that some upstream levels of the market, such as infrastructure deployment, have high barriers to entry, considering the capital intensive nature of some of the activities. However, there are opportunities for small enterprises in the service layer of the value chain, e.g., installation of some components, maintenance of the infrastructure, etc. Although most of the hardware used in South Africa is imported, there are prevailing opportunities in the areas of design, assembly, testing and configuration, requiring high end skills. Applications and gaming development, software development, datacentres (set costs are prohibitive, but there are opportunities in service and maintenance) and cloud computing based services seem to have low barriers to entry and as such, strategies to enhance SMMEs participation are required.

10. STRATEGIC FRAMEWORK FOR SMME DEVELOPMENT AND SUPPORT

This section provides a proposed framework and models for enabling the development of viable start-ups and improving the sustainability of existing ICT SMMEs. Furthermore, strategic interventions aligned to the three objectives underpinning the Strategy are outlined in sub-section 10.2.

10.1 MODELS FOR ICT SMME DEVELOPMENT

All enterprises begins at the bottom as start-ups, they grow and become small/medium enterprises, and graduate to established enterprises, then expands and finally matures. The business development and support services requirements changes as the business moves from one stage to the other. This section presents three basic models that will be applied in the process of enhancing the sustainability of SMMEs in the ICT Sector and they include (i) a model for discovering and supporting new ICT start-ups, (ii) a model for supporting existing SMMEs and lastly (iii) measures to accelerate the levels and uptake of ICTs by SMMEs across economic sectors.

10.1.1 Digital Incubation Hubs: A Model for developing new ICT start-ups

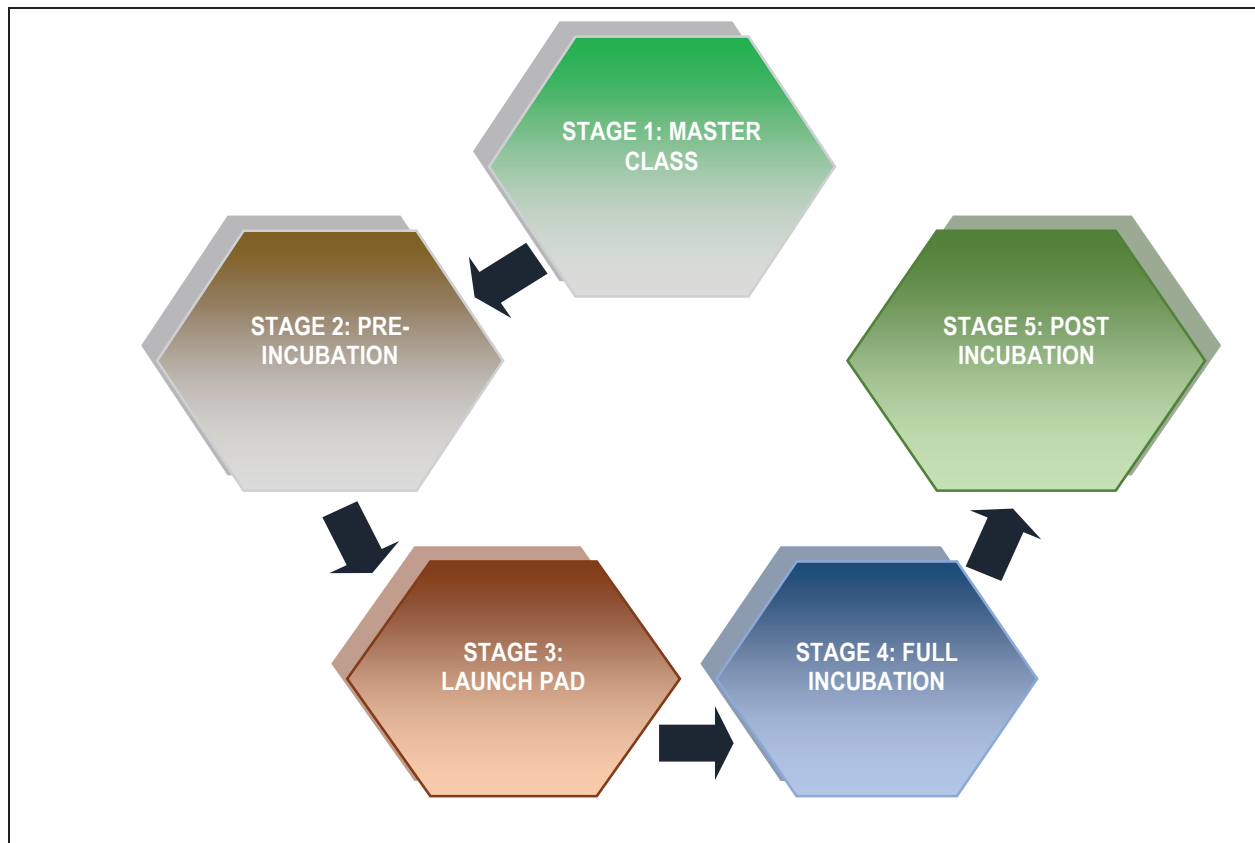
In this section we describe a model that aims to support the development of new start-ups, through incubating them over a period of time. It mainly focuses on discovering innovative ideas and supporting some of them as they grow into new digital Start-up. The incubation model recommended in this strategy is informed by an incubation remodelling feasibility study undertaken by the Small Enterprise Development Agency (SEDA). The study was conducted with the aim to develop a high-tech ICT incubator model based on international best practice but taking into consideration the South African environment.

Globally, the use of incubation infrastructure has yielded remarkable results for most developed and developing countries. Incubator facilities houses small start-up companies from their inception to meet their needs during their critical stages of development; public and private resources are combined until the start-ups become sustainable in their area. The National Business Incubator Association (NBIA), an incubator is "a business support process that accelerates the successful development of start-up and fledgling companies by providing entrepreneurs with an array of targeted resources and services²⁹.

²⁹ http://www.infodev.org/infodev-files/resource/InfodevDocuments_979.pdf

The diagram below illustrates how start-ups will be found, developed and supported from ideation to business acceleration, in line with SEDA's remodelled incubation. This high tech incubation model has 5 stages and, each of the five stages in this model is described in more detail below:

Figure 4: A Model for developing new ICT start-ups



Source: Seda: "Remodelling Feasibility Study", 2016.

Each of the five stages in this model is described in more detail below:

Stage 1: Master Class - The primary objective in the "Master Class" phase is to provide a structured programme to assess entrepreneurial readiness and commitment to the product/service. The programme focuses on building the entrepreneur's general business acumen as well as a sound foundation for a more sustainable business.

Stage 2: Pre-Incubation - The main objective of the Pre-incubation stage is to support entrepreneurs converting their ideas into viable finished products/services with potential yield benefit. The main contribution from the pre-incubation process is that it guarantees that companies entering the incubation process are ready to be developed.

Stage 3: Launchpad - The main objective of the Launchpad stage is to support entrepreneurs recently started their businesses, to assist with appropriately approved sound business plan and ICT product/service/prototype with proof of concept but not ready to be offered to a market. The entity must be operational and need to move to the next level of trading.

Stage 4: Full Incubation - The main objective of the Full Incubation stage is to support entrepreneurs that need to be housed in the development programme the centre has to offer. The incubate must be trading and have a customer base with basic human resources in place.

Stage 5: Post Incubation - The main objective of the Full Incubation stage is to support entrepreneurs that need to be housed in the development programme the centre has to offer. The entity must be trading and have a customer base with basic human resources in place.

Ingredients for successful Incubators: Cluster Principle

Successful technology/incubator hubs draw on a number of ingredients that combine to create a “critical mass” to sustain the hub’s activities. These include:

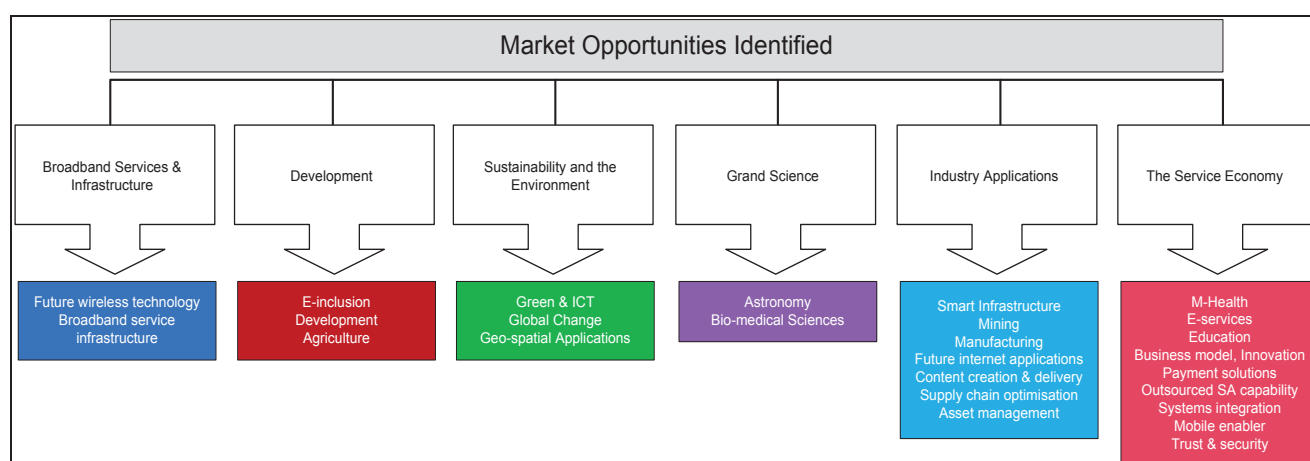
- In the vicinity of a higher education institution, to access interns, ideas and instructors. More importantly, the location of in incubation facility within the boundaries of a higher education institution enhances its viability, considering that it is situated in a secure environment.
- Close to business districts for access to enterprises that will be the sources of customers, mentors and funding.
- In an area populated by and popular with young people, with social and entertainment venues.
- Good transport facilities – roads, rail and bus links; adequate parking. This would make it easy and convenient for potential technopreneurs to access the facility.
- Good communications infrastructure – high speed broadband and free Wi-Fi.
- Access to funding sources – venture capital, angel investors, government grants and loans, banks.

Location is important and lessons can be learned from existing hubs in Pretoria, Cape Town and Durban. This proposed model is adapted from current incubation models implemented by in the country. Start-ups are incubated all in digital innovation, including applications development, Virtual Reality, games and hardware development.

The National Integrated ICT White Paper Policy calls for the Digital Hubs to be rolled-out in all District Municipalities, thus affording potential innovators, in provinces such as North-West, Mpumalanga, Limpopo, Northern Cape, Free State and Eastern Cape, an opportunity to enter the innovation space. In rolling-out these Digital hubs, government would need to partner with existing hubs as well as institutions of higher learning.

10.1.1.1 ICT Research Development and Innovation Road Map prioritised areas/Market opportunities for competitiveness

The 10 year ICT RDI aims to strengthen the Department of Science and Technology's role in the growth of the ICT sector highlights a number of areas as essential for the competitiveness of all economies. These comprises 6 key clusters of opportunity i.e. areas of significant and attractive market needs in which entrepreneurs can respond by building on existing capability. These will also prioritised in the process of facilitating the implementation of the Strategy, thus developing incubators.



Source: ICT RDI Roadmap & SEDA's Remodelling Feasibility Study, 2016.

According to a remodelling feasibility study by SEDA (2016), for ICT incubators to be relevant and fruitful, the services offered by the incubator should align to ICT challenges and address the incubates' stage of development. The same study further indicates that Top Tech Predictions showed that every analytical agency concurs that the following technologies will have market potential and capacity for development:

- Big Data and Analytics,
- 3D printing,
- The Internet of Things,
- Mobile Devices and Mobile Internet, and
- Cloud Computing.

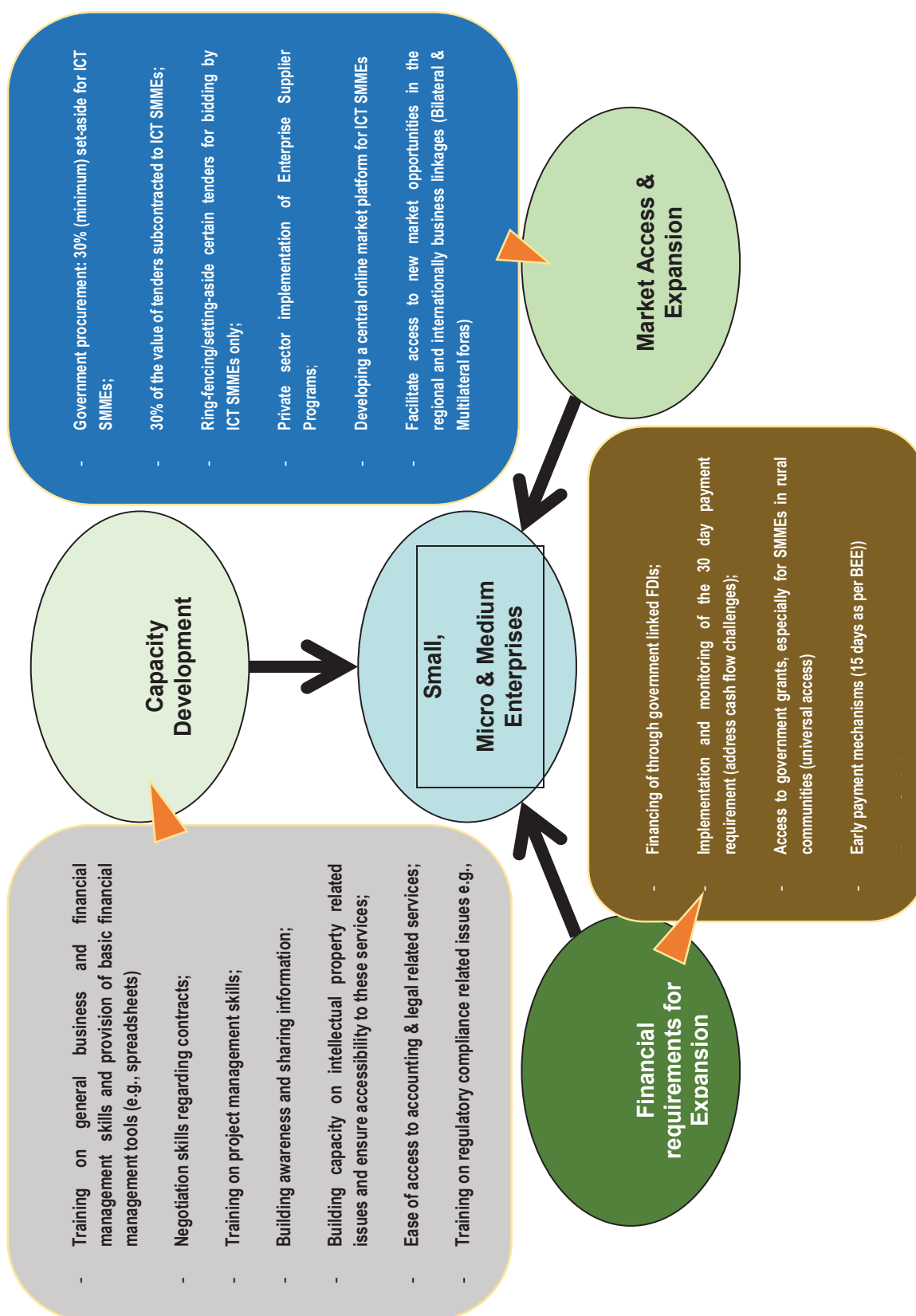
Therefore, incubators would need to ensure that their intake include amongst others, incubates or innovators focused on the above identified market opportunities. This will ensure that South Africa's innovations is at par with prominent incubators in developed countries and, take us

closer to meeting the requirements of the Fourth Industrial Revolution. The Fourth Industrial Revolution requires that more focus be put on *Innovation Driven Entrepreneurship*³⁰ (IDE).

10.1.2 A Model for accelerating development of existing SMMEs

Compared to new start-ups, existing SMMEs have gone past the stage of conceptualisation and their support requirements differs from those of new start-ups. The SMME owner's intent is to be their own boss and secure a financially sustainable place in a local market. At this stage, SMMEs are driven by making a profit and creating stable business offering hence, their support requirements changes drastically. The diagram below (figure 5) shows the business development stages, critical for determining the kind of support an enterprise would require at a particular stage.

³⁰ Innovation-Driven Entrepreneurship – these are entrepreneurs that pursue global opportunities based on bringing to customers new innovations that have a clear competitive advantage and high growth potential. http://www.cs.bilkent.edu.tr/CS491-2/current/YFYI_Faculty_Presentation.pdf

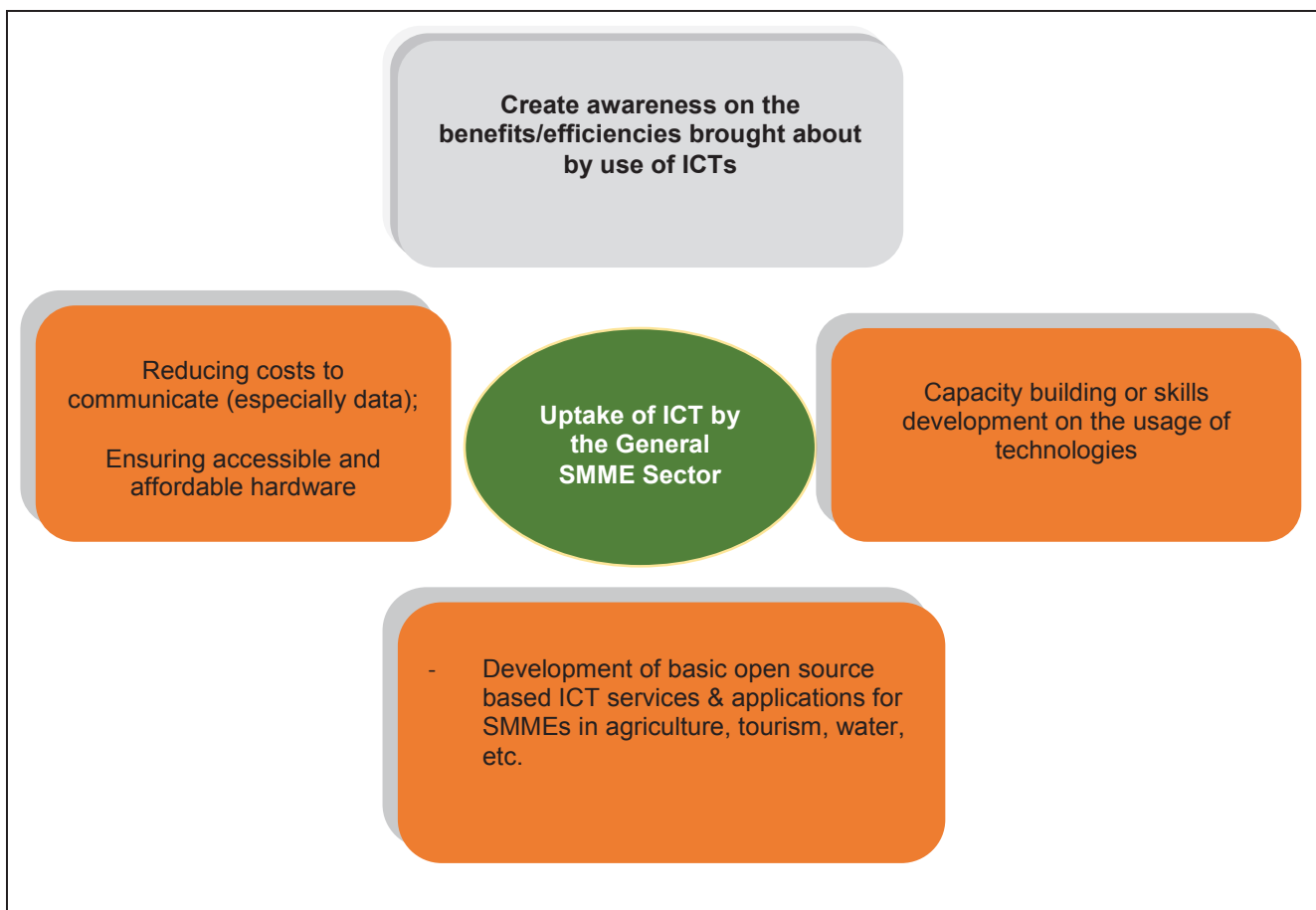


In line with outcomes of consultation process, the three areas identified as critical for sustaining existing ICT SMMEs and, underpins the model in the Support Strategy are *market access and expansion*, *access to financial resources for expansion* and capacity development on a number of areas. The details for each aspect of the sustainability model are provided on diagram above. It then becomes critical for all business development and support agencies (both public and private sector) to package their services to address the needs of SMMEs appropriately.

10.1.3 Model to increase uptake and usage of ICTs by SMME in other sectors

If SMMEs across economic sectors are to take advantage of ICTs and utilise them to increase efficiencies, a number of interventions would need to be implemented. The model above proposes three areas: creating awareness on the benefits of using ICTs in business; developing the necessary capacity for SMMEs to use the technologies in their economic sectors, developing open source based ICT services and relevant applications, reducing the cost to communicate and lastly ensuring easy access to affordable hardware by SMMEs in agriculture, water, tourism, forestry, etc.

Figure 6: 10.1.3 Model to increase uptake and usage of ICTs by all SMME



10.2 STRATEGIC INTERVENTIONS TO SUPPORT ICT SMME DEVELOPMENT

The economic potential of the SMMEs to develop sustainable businesses and to create jobs must be recognised and measures to foster their growth must be developed and implemented in a sustainable manner. The SMMEs should be assisted in increasing competitiveness by streamlining administrative procedures, facilitating their access to capital and enhancing their capacity to participate in ICT-related projects. This section of the document presents possible strategies to enhance the development of viable South Africa ICT SMMEs, whilst increasing the uptake and usage of ICTs by SMMEs across the board. The strategic interventions, are presented in alignment with the three objectives highlighted in Section 5 of the Strategy.

Strategic Objective 1

Facilitate the accelerated growth and entry of SMMEs (particularly youth and women entrepreneurs) in the ICT sector.

Strategic intervention 1: Facilitate effective participation of ICT SMMEs in the Broadband Infrastructure and Services Market

- Facilitate participation of ICT SMMEs in the establishment of the Wireless Open Access Network in line with the National Integrated ICT White Paper Policy.
- Facilitate participation of ICT SMMEs as mobile virtual network operators (MVNOs) in the service provision layer of the market by enabling the provision of necessary funding and capacity related interventions.
- Establish Internet Service Providers (ISPs) in the townships. This will require partnerships with both private and public entities to create the necessary support structures and resources, including funding, technical, business, financial and project management skills.
- Facilitate the establishment of youth and/ or women owned and managed cell-phone repair shops in the townships. These shops will repair cell-phones and other ICT gadgets, and provide service such as internet; faxing; laminating and binding; typing and printing; and retail services in ICT accessories and air time.

The Department in collaboration with ICASA, zadna (Domain Name Authority) and other key stakeholders will establish an implementation steering committee to plan and monitor this strategic intervention.

Strategic intervention 2: Broaden participation of SMMEs in data centres, search and navigation systems, software and digital content development segments

- Establish partnerships with both private and public entities to source funding in order facilitate the entry of SMMEs in these markets.
- Develop the necessary capacity, to ensure participation of new small players in the data centre space, especially in provinces where this infrastructure does not exist.

- Establish partnerships with innovators to facilitate the development of South African search and browser applications that provide locally-oriented content.

The Department, SITA will draw up and coordinate plans for the uptake and use of South African software and hardware in the e-government strategy. The partnership between public, private sectors and the SMME sector will be coordinated by the DTPS.

Strategic intervention 3: Use Government (including SOCs) and Private sector procurement as a lever for ICT Small Business Development

- In partnership with state-owned companies, facilitate the implementation of the minimum of 30% set-aside for ICT SMMEs in procurement of services, including in the South Africa Connect Broadband Roll-out project.
- Support the implementation of the 30% subcontracting for ICT SMMEs on tenders above a prescribed threshold, in line with the ICT B-BBEE Codes.
- Support the Ring-fencing of certain business opportunities for bidding by ICT SMMEs only.
- Work with the ICT BEE Council to continuously monitor the implementation of the ICT Sector Code for development of ICT SMMEs.
- Continuous monitoring of the implementation of the 30 days payment policy of government, thus enhancing the viability of ICT SMMEs.
- Provide capacity building workshops to ICT SMMEs on tenders and bidding associated activities.

The Department and BBBEE Council will develop a programme to implement this strategic intervention taking into consideration the BBBEE reporting measures and the reporting cycles.

Strategic interventions 4: Promote International Competitiveness of ICT SMMEs

- Build capacity on trade and investment for ICT SMMEs and identify opportunities.
- Export support for ease of trade through e-commerce (using SAPO's e-commerce platform).
- Expand the market reach of SMMEs through promoting the development and uptake of web-related marketing platforms.
- Use bilateral and multilateral agreements to facilitate markets access and capacity building in skills required for the fourth industrial revolution (incl. software development).
- Working closely with Multinational Companies by facilitating their interactions with potential SMME service providers/suppliers to (i) understand their supply requirements, (ii) identify areas in which they have good opportunities to supply, and (iii) draw attention to weaknesses they must overcome in order to succeed.

- Work with both multinational and local companies to enhance supplier capabilities of ICT SMMEs.

The Department, DTI, DSBD and DIRCO will work together to develop a joint programme targeting new and existing markets for South African SMME products.

Strategic interventions 5: Coordinate and advance private sector partnerships to support the development of ICT SMMEs

- Forge partnerships with the private sector to advance the development of ICT SMMEs.
- Assist SMMEs to benefit from existing private sector development programmes, with a particular focus on widening opportunities on access to markets and promoting commercialization of ideas or products.
- Support the ICT BBBEE Council in the monitoring of compliance to the ICT sector code elements, particularly on Enterprise Supplier Development programmes.

Strategic Objective 2

Increase uptake and usage of ICTs by the South African nation as a whole, and especially by SMMEs across all sectors of the economy.

Strategic interventions 1: Create Awareness on the use of ICTs and Capacitate SMMEs to use Technology

- Roll-out awareness campaigns on the benefits offered by ICTs for all SMMEs.
- Facilitate the subsidization or funding of cloud computing solutions for SMMEs by government. Cloud computing solutions introduce operational efficiencies for business.
- Support the provision of incentives to SMMEs to transform their businesses through e-commerce and/or start an e-commerce business.
- Work with innovation institutions to facilitate the development of affordable applications for day-to-day management of ICT SMMEs businesses, etc.

The Department, sectoral organisations and SMMEs will develop annual plans.

Strategic interventions 2: Promote Capacity Building to existing and potential entrepreneurs

- Facilitate the development and implementation of relevant training programmes on both technical and soft skills to SMMEs.
- Promote the development and implementation of an appropriate entrepreneurship competency programme that provide insight into the tools, techniques and framework for managing all functional areas of an ICT business enterprise.

- Coordinate the roll-out of ICT sector specific incubation hubs. The hubs will incubate ICT entrepreneurs and provide the necessary support to accelerate their growth. The Department, Provincial Governments, DST will work together to develop an incubation plan for ICT SMMEs.

The DTSPS, E-Skills Institute, SEDA will work together to develop a comprehensive business management training portfolio to enable this intervention.

Strategic intervention 3: Create Awareness on existing ICT SMME development Private and Public Sector Programmes.

- Host an Annual Public-Private Sector Partnership Conference on the development of ICT SMMEs. The Conference will serve as a networking platform for ICT SMMEs and big business; provide business linkages and showcase available business opportunities by ICT companies (MNOs), OEMs, business development agencies, etc. It will also create awareness on existing support instruments in the public and private sector; as well as create a platform for information sharing.

The Department, SOCs and ICT sector will work collaboratively to implement this strategic intervention.

Strategic Objective 3

Establish a coordinated and integrated planning mechanism for development of ICT SMMEs within the broader national framework of SMME development across all economic and social sectors.

Strategic intervention 1: Effective Monitoring and Evaluation System for ICT SMMEs

- Develop a centralised database for ICT SMMEs to enable coordination of SMME activities, this will also enable evidence based policy making and effective monitoring of the sector.
- Establish an ICT SMME project coordination mechanism to coordinate the implementation of the ICT SMME Support Strategy.

The Department, National ICT Forum, BBBEE Council will be responsible for co-ordination and monitoring.

Strategic intervention 2: Create an Enabling Policy and Regulatory environment for SMMEs to thrive.

- Ensure the alignment of general SMMEs policies with ICT sector specific policies and regulations.
- Work with the DTI to finalise the Intellectual Property Policy to promote and protect domestic innovators.
- Roll-out awareness campaign to familiarise grassroots innovators on Intellectual Property Issues.

The Department, DTI, CASA, DSBD, Digital Fund will work together to develop and co-ordinate the interventions.

Strategic intervention 3: Enhance Access to Funding Instruments and Incentives.

- Work with relevant government Departments to ascertain that within existing incentives, resources are set aside and tailored specifically to the needs of the ICT sector.
- Coordinate and ensure contributions by private sector in ICT entrepreneurship development.
- Government to provide collateral for ICT SMMEs, through providing sustainable business contracts/implementation of preferential procurement policies.
- Encourage cooperation between SMMEs with venture capital investors. Venture capital involves the provision of investment finance to SMMEs in the form of equity, mostly in high growth sectors. Venture capital investors are actively involved in the management of the business they invest in, to ensure the success of the venture.
- Encourage creditors and lenders to develop solutions and products better adapted to ICT SMME needs.
- Promote the use of alternative banking institutions, conducive to the challenges and needs for SMMEs, (e.g., Post Bank).
- Work with government at provincial and local spheres to ensure ICT SMMEs access to strategic business sites at affordable rates.

The Department and the DTI will establish a Steering Committee to tailor make state interventions and foster private public sector partnerships

Strategic Intervention 4: Enable Access to Markets by ICT SMMEs

- Identify and facilitate market linkages to existing and new ICT SMMEs with the aim of enhancing their sustainability.
- Develop and implement an ICT SMME central and integrated database and a website to enable local SMMEs to display their goods and services in the global space.
- Develop and implement an export readiness programme, to open market opportunities for ICT SMMEs with export ready products and services.
- Work with the DTI to market local ICT SMME goods and services abroad.
- Ensure that local ICT SMMEs are also featured in foreign/multilateral marketing platforms.

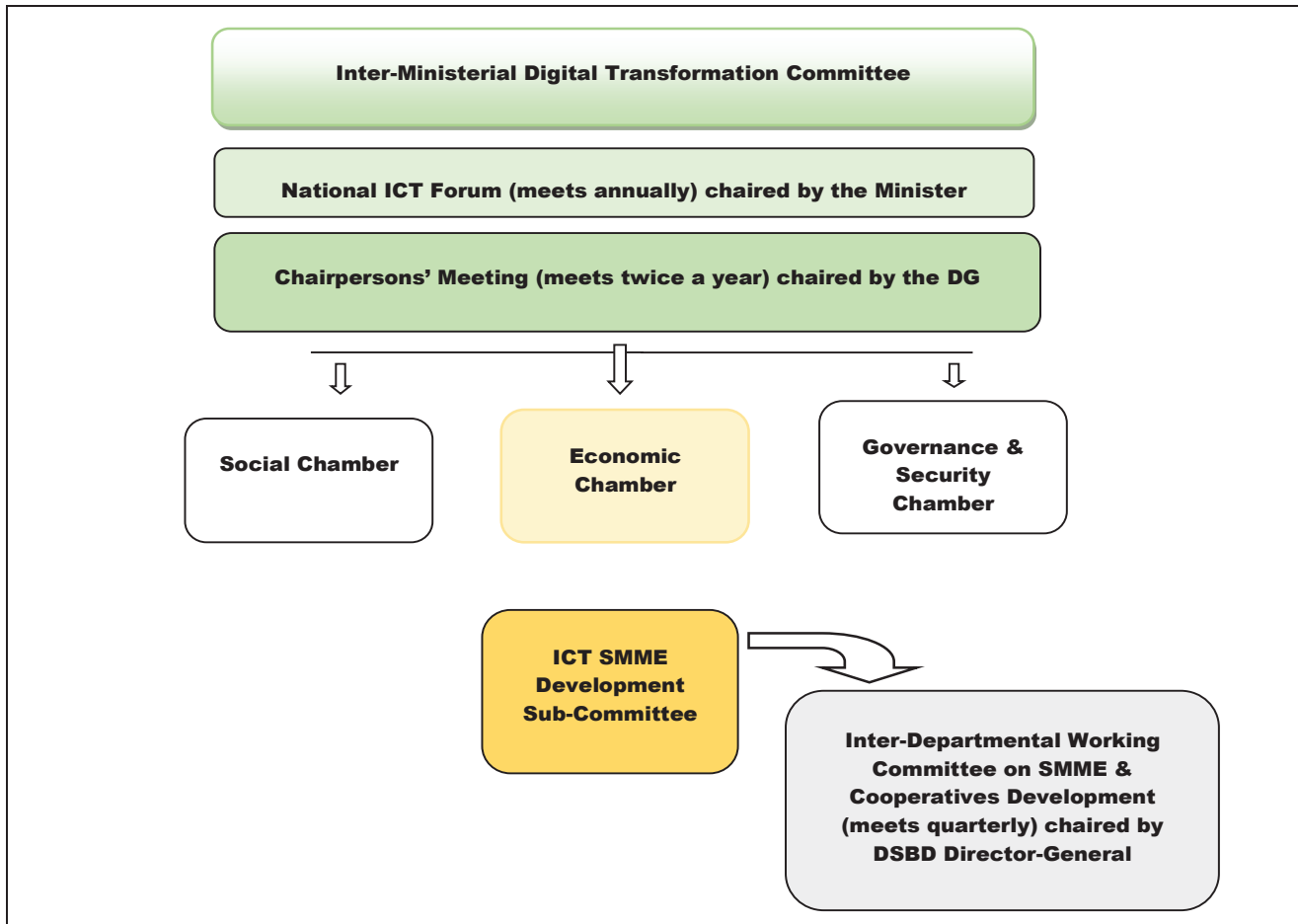
The DTPS, DTI, DST and the DSBD will work within the government framework to support SMMEs and implement of this intervention.

11. INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION OF THE STRATEGY

There is a need to strengthen partnerships between government, industry associations, market intermediaries, academia, civil society organizations, grassroots groups, who must all be able to play their roles effectively in the entrepreneurship development ecosystem. Complex, systematic challenges like expanding economic opportunities to SMMEs, present frustrating bottlenecks to unilateral actions, especially from government side. Even the best resourced efforts eventually run into limitations of scale at some point. Therefore, the implementation of this ICT SMME Support Strategy requires concerted efforts from all relevant stakeholders. Collaboration allows parties to share knowledge and information, pool scarce or diverse assets and resources, access new sources of innovation and create economies of scale. The public sector, or more exactly the government bodies, will act as partners with the private sector, i.e. with SMMEs, as well as with the organisations of civil society, all for the purpose of contributing to the development of the entrepreneurial sector, and consequently to the South African economy in general.

11.1 COORDINATION FOR THE IMPLEMENTATION OF THE STRATEGY

It is important to have a single coordinating body responsible to coordinate and facilitate the implementation of the ICT SMME Support Strategy. The strategy has to combine and coordinate efforts of institutional structures that make or affect policy, the administration of policy and public support organisations. In this regard, the current National ICT Forum will be entrusted with the responsibility for coordination, facilitation and overseeing the implementation of the ICT SMME Support Strategy. This work will be undertaken through an ICT SMME Development Sub-Committee, reporting to the Economic Chamber. The Work of the Sub-Committee will also feed into Inter-Ministerial Digital Transformation Committee, a structure proposed in the National Integrated ICT Policy White Paper.

Figure 7: Coordination Mechanism for implementation of the ICT Development Strategy

11.2 ICT SMME DEVELOPMENT INSTITUTIONAL MECHANISM

An ICT SMME Project/Programme Implementation plan will be developed and reviewed annually. In line with the areas prioritised in the National Integrated ICT White Paper Policy the work of the ICT SMME Development Sub-committee will be structured along the broad sub-sectors of the industry viz. ICT Manufacturing (including the electronics and related hardware sub-sectors), ICT software development (including applications development) and the ICT Services industry (providing maintenance, logistical support, data warehousing, network support etc.). This distinction is essential to ensure that interventions take cognisance of the uniqueness of each and that targeted support programmes are developed accordingly, also prioritising opportunities for ICT SMME development across the value chain.

The ICT SMME Development Sub-Committee will also feed its activities and programme to the National Inter-Departmental Small Business & Cooperatives Coordination Committee, which is chaired by the Director-General of the Department of Small Business Development (DSBD). This structure coordinates SMME Development activities across all government departments.

APPENDIX TO THE STRATEGY

PROJECT DEVELOPMENT (ACTION PLAN) – IMPLEMENTATION OF THE ICT SMME SUPPORT STRATEGY 2017 – 2019

STRATEGIC OBJECTIVES	STRATEGIC ACTIONS	KEY STAKEHOLDERS	TIMEFRAME
STRATEGIC OBJECTIVE 1 Facilitate the accelerated growth and entry of SMMEs in the ICT sector.	Participation of SMMEs in the WOAN Create an enabling environment for ICT SMMEs to enter and participate in the mobile broadband market (through the Wireless Open Access Network). SMMEs can participate as ISPs and MVNOs. The Department will facilitate the requirements for licensing, accreditation, funding, etc. for SMMEs.	DTPS, MNOs, SMMEs, DFIs and etc.	To be aligned with the process of establishing and licensing the WOAN
	Establishment of ISPs Establish 96 Internet Service Providers, prioritising youth and women owned Internet Service Providers to widen participation of SMMEs in the ISP market. SMMEs as Resellers of upstream services Facilitate the establishment of SMMEs as Resellers of upstream services – some SMMEs will be resellers to ISPs as reselling has very low barriers to entry and enables an SMME to build a customer base and expertise required to become a fully-fledged ISP.	DTPS, DSBD, EDD, the dti and National Treasury Funding Stakeholders: e.g. Small Enterprise Finance Agency – Sefa; National Empowerment Fund (NEF); and etc. Non-Financial Support (including incubation): Small Business Development Agency (SEDA); Government and Private Sector Incubators, Academia, Incubation Centres and etc.	2017 – 2019

STRATEGIC OBJECTIVES	STRATEGIC ACTIONS	KEY STAKEHOLDERS	TIMEFRAME
	Establishment of Cellphone repair shops Establish youth/women owned and managed cell-phone repair shops (Incl. provision of internet services; faxing services; retail in ICT accessories and air time, etc.).	DTPS, DSBD, EDD, the dti and National Treasury Funding Stakeholders: e.g. Small Enterprise Finance Agency – Sefa; National Empowerment Fund (NEF); and etc. Non-Financial Support (including incubation): Small Business Development Agency (SEDA); Government and Private Sector Incubators	2018 - 2019
	Manufacturing Establish partnerships with OEMs and Operators to identify components and devices that can be produced locally. Set up support structures for local manufacturing of ICT devices and components.	ICT Industry stakeholders (OEMs, MNOs, etc). DTI, DIRCO, EDD, DSBD, Municipalities	2017 – 2019
	Software development Identify opportunities for SMMEs in the gaming industry, cloud computing and software development. Establish support structure for the development of local software.	Department of Sport, DTPS, DSBD, DST, Incubators, Youth Organisations and Sport Federations	2018-2019

STRATEGIC OBJECTIVES	STRATEGIC ACTIONS	KEY STAKEHOLDERS	TIMEFRAME
STRATEGIC OBJECTIVE 2 Increase the uptake and usage of ICTs by the South African nation as a whole, and especially by SMMEs across all sectors of the economy.	Training for SMMEs Forge partnerships with key stakeholders to provide training in ICT skills including: ✓ ICT and e-literacy skills; ✓ Software and applications development, games, etc. ✓ Cellphone repairs; ✓ Website development and web hosting; ✓ business and financial management skills; ✓ Project management; ✓ Tendering processes and etc.	DSBD/SEDA/Private Sector and Academia Ikamva (e-Skills Institute), DTPS, DSBD/SEDA/SEFA, National Treasury, NGOs	2017 – On-going
	e-commerce Use government funding to incentivize the SMMEs to either transform their businesses through e-commerce or start an e-commerce business. This include creating for SMMEs to be online.	Government, SOCs, academia and private sector stakeholders	Continuous
	Establishment of ICT Hubs in Municipalities Forge partnerships with municipalities and key stakeholders to establish ICT Hubs in townships to support rural enterprises	Funding Stakeholders: e.g. Small Enterprise Finance Agency – Sefa; National Empowerment Fund (NEF); and etc.	2017 – 2019
	Cloud computing Facilitate the subsidization or funding of cloud computing solutions for SMMEs through government interventions. Cloud computing solutions introduce operational efficiencies for business.	Government, SOCs, academia and private sector stakeholders	Continuous

STRATEGIC OBJECTIVES	STRATEGIC ACTIONS	KEY STAKEHOLDERS	TIMEFRAME
STRATEGIC OBJECTIVE 3 Establish a coordinated and integrated planning mechanism for development of ICT SMMEs within the broader national framework of SMME development across all economic and social sectors.	Procurement Facilitate and monitor the implementation of the minimum set-asides of 30% for procurement of services to SMMEs (preferential procurement provision)	DTPS, SITA, BBI, Sentech, DSBD, EDD, the dti and National Treasury Funding Stakeholders: e.g. Small Enterprise Finance Agency – Sefa; National Empowerment Fund (NEF); and etc. Non-Financial Support (including incubation): Small Business Development Agency (SEDA); Government and Private Sector Incubators	2017 – 2019
	Create a central and an integrated national database and a website for ICT SMMEs Operationalization of an ICT SMME Digital Platform.	DTPS ISAD Branch, Ikamva (e-Skills Institute),	March 2017

STRATEGIC OBJECTIVES	STRATEGIC ACTIONS	KEY STAKEHOLDERS	TIMEFRAME
	Establishment of ICT SMME Incubation Centres Facilitate the roll-out of ICT SMME Incubation Centre in provinces lacking this type of infrastructure. Leverage on existing Incubation Centres initiatives to incorporate ICTs	DTPS, DTI, DIRCO, Provinces, Municipalities and ICT Industry stakeholders NGOs	2 incubation centres targeted for 2018/19 2 incubation centres in 2019/20
	Localisation Facilitate the implementation of the localisation strategy (within the framework of IPAP) of government, particularly the participation of SMMEs	DTPS/DTI/DSBD/DST, DFIs & Original Equipment Manufacturers (OEMs)	Continuous
	Advance BBBEE empowerment targets Work with the ICT BEE Council to continuously monitor the implementation of the ICT Sector Code for development of ICT SMMEs.	B-BBEE ICT Sector Council, SOCs, DTI	2017-2019
	Create awareness on existing ICT SMME development private and public sector programmes Host an Annual Public-Private Partnership Conference on ICT SMME development: - To provide Business linkages and showcasing of available business opportunities by ICT companies (MNOs), OEMs, business development agencies, etc. - Information sharing - Create a platform for market access	<ul style="list-style-type: none"> ICT Industry and ICT-related stakeholders; OEMs (Microsoft, HP, Huawei, etc.); Government Business Development Support institutions (SEDA, Sefa, NEF, SITA, MICT-Seta, etc.) 	Annually. The first one (ICT SMME Imbizo) was hosted in May 2017 on the side-lines of the Africa World Economic Forum
	International competitiveness Develop the International competitiveness Strategy for ICT SMME development	DTPS and relevant Government Departments and Private Sector entities	2018