



mictseta

Media, Information and Communication Technologies
Sector Education and Training Authority

Accelerating quality skills towards an information savvy society

***Sector Skills Plan
2020 to 2025***

Final Submission

1 August 2019


Foreword

In this annual update of the MICT SETA Sector Skills Plan, we have conducted rigorous research to ensure that the occupational shortages and skills gaps are true reflections of demand. Data on labour shortages is often a subject of debate. To this effect, a number of different stakeholders were consulted to construct a comprehensive picture of the sector and its direction.

This year, we revised the methodology and research data sources to acquire deeper insight into the real skills shortages and to support industry in closing those skills gaps. The more confidence we have in the sectoral priority occupations, the more assured we are of the Strategic Plan. The combined efforts from all stakeholders to produce this document are gratefully acknowledged. The following deserve special mention:

- The Ministerial representatives on MICT SETA’s Board;
- Industry, via representation on MICT SETA’s Board; and
- Organised Labour, through representation on MICT SETA’s Board.

Our thanks go to all the stakeholders whose collective wisdom has been incorporated into this document. Sharing of knowledge is the catalyst for achieving South Africa’s skills development potential and economic growth.



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CEO: MICT SETA



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Acronyms

Abbreviation	Description
ATR	Annual Training Report
B-BBEE	Broad-Based Black Economic Empowerment
CAGR	Compound Annual Growth Rate
CECS	Centre of Excellence in Cyber Security
DTT	Digital Terrestrial Television
EE	Employment Equity
ETQA	Education and Training Quality Assurance
GDP	Gross Domestic Product
HEMIS	Higher Education Management Information System
HET	Higher Education and Training (Institution)
HRDSSA	Human Resource Development Strategy of South Africa
ICT	Information and Communication Technology
IPAP	Industrial Policy Action Plan
ISOE	Institute of Sectoral and Occupational Excellence
IT	Information Technology
MICT	Media, Information and Communication Technologies
NDP	National Development Plan
NQF	National Qualifications Framework
NSI	National System of Innovation
NSDS	National Skills Development Strategy
OFO	Organising Framework for Occupations
OGS	On-line Grant System
PC	Personal Computer
PICC	Presidential Infrastructure Coordinating Commission
SDF	Skills Development Facilitator
SDL	Skills Development Levy
SETA	Sector Education and Training Authority
SIC	Standard Industrial Classification
SIP	Strategic Integrated Projects
SKA	Square Kilometre Array
SMME	Small, Medium and Micro-enterprises
SSP	Sector Skills Plan
STB	Set Top Box
TVET	Technical Vocational Education and Training
WIL	Work Integrated Learning
WSP	Workplace Skills Plan

Executive Summary

The MICT Sector Skills Plan (SSP) has been developed over the period of NSDS III to map out and plan for the occupational skills needs in Advertising, Film and Electronic Media, Electronics, Information Technology and Telecommunications industries. Each year it is updated to analyse the changes in the sector's labour market and does so against the backdrop of the economic performance of the sector and developmental agenda of the country. It sizes up the gap between the demand and supply for skills and finally outlines strategies for dealing with the identified challenges.

Sector Profile and Analysis

The MICT sector is currently made up of 30,727 companies spread across the five sub-sectors. These estimates represent only companies allocated to the MICT SETA through the SARS registration process. 48% of the sector employer base is constituted by organisations in the Information Technology sub-sector, followed by Telecommunications with 17% and Electronics and Advertising with 12% each. Contributing the least from the sectors is Film and Electronic Media with 9%. Overall, the number of levy-paying employers has increased by 11.5% in 2019 (7,902 employers), up from 7,089 employers the previous financial year.

Economic growth in the MICT sector has been declining. While the telecommunications subsector has been vibrant, the other sub-sectors have not performed as they might have been expected to.

Employee data suggests that the labour market has been relatively flat; with an increase of just 1% between 2018 and 2019.

Skills Demand, Supply and Scarcity

The following is a list of top 10 occupations with hard to fill vacancies in the MICT sector (and the quantity needed).

- Software developer (2 434)
- Computer Network Technician (1 948)
- Computer Network and Systems Engineer (731)
- ICT Security Specialist (713)
- ICT Systems Analyst (676)
- Programmer Analyst (397)
- Management Consultant (Business Analyst) (359)
- Advertising Specialist (224)
- Telecommunications Network Engineer (164)
- Database Designer and Administrator (114)

The MICT SETA has engaged in several partnerships with TVET colleges and institutes for sectoral and occupational excellence (ISOEs) to improve delivery of training programmes. Furthermore, the SETA has mapped occupations against career pathways so that it is easy to identify Sectoral Priority Occupations interventions, and in that way, ensure seamless funding of skills development through the 80% Sectoral Priority Occupations allocation of the discretionary grants.

Sector Skills Priority Actions

The following sets out the proposed broad skills development objectives for the sector:

- Better position the MICT Sector to enable the Fourth Industrial Revolution, through increasing access to and uptake of relevant skills development interventions, and by developing required qualifications and learning interventions.
- Improve the trustworthiness of the data used for skills planning. Each of the occupations with hard to fill vacancies will be mapped to learning pathways.
- Partner with stakeholders in each sub-sector to set realistic targets, assess provision and access across provinces, regions, industries, occupations and different size companies, and identify weaknesses.
- Scope the skills development needs and priorities in rural areas to provide career and vocational guidance. Support government in addressing the e-governance issues and assist aspirant training providers to attain accreditation and deliver on MICT SETA programmes.
- Support initiatives to apply technology in a manner that enables transformation of the sector, with regard to female learners, learners with disabilities and rural learners. The development of skills related to 4IR can contribute - for instance through the development of teaching aids to assist learners with disabilities.
- Improve provision of skills development to SMMEs, particularly with regard to 4IR. This will enable the development and commercialisation of technologies and products that improve localisation and increase exports.
- Develop cross-sectoral partnerships and projects in the delivery of learning interventions. There is a need for some inter-SETA projects that fund interventions relating to MICT skills located in other sectors as well as skills interventions developed in other SETAs (e.g. finance, corporate communications) that can be delivered in the MICT sector.
- Review Grants Policies and Procedures to enable impact across the range of sector development initiatives. There is a need to strengthen project management capacity to design, establish and facilitate implementation of specially designed projects

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SSP Research process and methods

In producing this SSP a mixed-method approach that included quantitative and qualitative research methods was adopted. In addition, data was triangulated across various sources (i.e. verified), thus, in the resultant SSP, ensuring a scientifically sound and accurate depiction of the sector and its needs.

The following are some of the research studies that have been conducted by the MICT SETA to inform the development of the SSP.

Topic	Nature (Design) of the Study	Objectives of Study	Data Collection Tool	Sample Size and Scope	Data Sources and Data Sets	Time Frame
Mini reports on the dynamics of the MICT sub-sectors	Qualitative and quantitative	A profile of all 5 sub-sectors providing a brief overview of MICT SETA sectors. The studies covered the key trends and challenges, new technologies affecting sectors (drivers of change) and skills supply and demand.	Literature review guide	<ul style="list-style-type: none"> 5 MICT SETA sub-sectors: Advertising, Electronic, Information Technology, Telecommunications 	<ul style="list-style-type: none"> MICT SETA Online Grant System Stats SA SARS database MICT SETA MIS Key literature 	2018
MICT SETA Impact Study on Learnerships, Internships, Skills and Short Programmes	Quantitative and qualitative	Measure the impact of MICT SETA learning programmes on learners participating in funded programmes. Explore and document key features, trends, challenges and outcomes of skills interventions in MICT SETA subsectors.	<ul style="list-style-type: none"> Literature review guide Interview questionnaire Surveys Focus Group guide 	<ul style="list-style-type: none"> 404 learners, employers and training providers 	<ul style="list-style-type: none"> Annual Reports: 2013/14-2017/18 Annual Performance Plan: 2015/2018 Sector Skills Plan 2019-2024: 2018 Update Quarterly Monitoring Reports (QMR): 2013/14-2017/18 	2018/19
Employer and Training Provider Interviews	Qualitative	The objectives of these interviews are to get an understanding of key developments in the sector and gather insights in regard to hard to fill vacancies, critical skills and change drivers in the MICT sector. This study covers the views of small	Interview questionnaire	<ul style="list-style-type: none"> 30 interviews with employers and training providers 	<ul style="list-style-type: none"> MICT SETA Levy Huge File MICT SETA Levy Huge File 	2019

Topic	Nature (Design) of the Study	Objectives of Study	Data Collection Tool	Sample Size and Scope	Data Sources and Data Sets	Time Frame
Employer Survey	Quantitative	to large employers, and training providers, across all the subsectors of the MICT sector. The goal of this survey is to assess stakeholders' opinions on developments in the sector, hard to fill vacancies, critical skills and change drivers across the five sub-sectors.	<ul style="list-style-type: none"> Surveys 	<ul style="list-style-type: none"> Up to 90 surveys 	<ul style="list-style-type: none"> MICT SETA Levy Huge File 	2019
Employer and Training Provider Focus Groups	Qualitative	The objectives of these group discussions are to test the findings from literature review and interviews in regard to hard to fill vacancies, critical skills and change drivers in the MICT sector. This study covers the views of small to large employers, and training providers, across all the subsectors of the MICT sector.	<ul style="list-style-type: none"> Focus group guide Structured discussion with employers and training providers 	<ul style="list-style-type: none"> 3 focus groups with up to 15 attendees each are scheduled across three provinces 	<ul style="list-style-type: none"> MICT SETA Levy Huge File 	2019

Conclusion

The MICT SETA utilises various research outputs to compile the SSP. This approach enables the SETA to produce a plan that is detailed and informed by data and yet written in a language that is clear and simple; which can be understood by multiple stakeholders who use the SSP as a source. For the preparation of this SSP in 2019, the MICT SETA benefitted from receiving additional feedback from DHET, which provided key guidelines, especially on Chapter 5: Given that the SSP is made up of multiple research sources and a combination of methodologies, the process may take up to eight months to complete. A bibliography of sources is provided at the end of the SSP with the specific details of the sources that were utilised in the preparation of the SSP.

Chapter 1: Sector Profile

1.1 Introduction

This chapter presents and profiles the shape and size of the Media, Information and Communication Technologies (MICT) sector including its scope of coverage and key role players, economic performance, employer profile and labour market profile. It also provides an economic trend analysis and projection of how the economy of the sector might unfold and concludes with implications for skills development. In profiling the five sub-sectors of the MICT sector, research data from multiple sources, including publicly available literature and employer levy files, was utilised.

1.2 Scope of coverage

The MICT sector is made up of five sub-sectors that are interrelated but also quite distinct and identifiable. These are advertising, film and electronic media, electronics, information technology and telecommunications.

The standard industry classification (SIC) codes that demarcate the MICT sector fall under four different sub-industries, namely: (1) manufacturing; (2) transport, storage and communication; (3) finance, insurance, real estate and business services; and (4) community, social and personal services. Table 1 lists the economic activities and SIC codes allocated to the MICT SETA and the derived MICT sub-sectors.

Table 1: The MICT SETA SIC Code List

Sub-Sector	SIC-Code	Description
Advertising	88310	Advertising
	88311	Activities of Advertising Agents
	88313	Commercial Design
Film and Electronic Media	96110	Motion Picture and Video Production and Distribution
	96112	Related Activities - Film and Tape Renting to Other Industries, Booking, Delivery and Storage
	96113	Film and Video Reproduction
	96123	Bioscope Cafes
	96132	Production and Broadcast of Radio and Television Broadcast Content
	96200	News Agency Activities
	88940	Photographic Activities
Electronics	35791	Manufacture of Alarm Systems
	75216	Security Systems Services except Locksmiths
	75217	Office Automation, Office Machinery and Equipment Rental Leasing including Installation and Maintenance
	86004	Electronic and Precision Equipment Repair and Maintenance Computer Maintenance and Repairs
	86010	Consumer Electronics Repair and Maintenance
	86013	Other Electronic and Precision Equipment Repair and Maintenance
	86014	Repair and Maintenance of Electronic Marine Equipment
	87142	Research and Development of Electronic Equipment and Systems
	87143	Import and Product Integration of Pre-Manufactured Electronic It and Telecommunications Equipment
	87146	Research and Development in The Physical and Engineering Sciences
87147	Electronics Importation and Product Integration of Pre-Manufactured Electronics It and Telecommunications Equipment	
Information Technology	96133	Installation, Maintenance and Repair of Tracking Devices for Cars
	86001	Software Publishers Prepacked Software
	86002	Computer Systems Design and Related Services Computer Integrated Design
	86003	Computer Facilities Management Services
	86005	Computer Rental and Leasing

Sub-Sector	SIC-Code	Description
Tele-communications	86006	Computer Programming Services
	86007	Other Computer Related Activities
	86008	Call Centre Systems Development and Installations Activities Call Centre and Customer Relationship Management System Development
	86009	Computer System Design Services and Integrated Solutions
	86011	Computer and Office Machine Repair, Maintenance and Support Services
	75200	Telecommunication
	75201	Wired Telecommunication Carriers Telegraph
	75202	Television Broadcasting, Television and Radio Signal Distribution Television and Radio Signal Distribution
	75203	Cable Networks and Programme Distribution Cable TV Services
	75204	Telephone
	75205	Wireless Telecommunication Carriers except Satellite Radiotelephone
	75209	Television Broadcasting
	75211	Telecommunications and Wired Telecommunication Carriers
	75212	Paging
	75213	Cellular and Other Wireless Telecommunications
	75214	Satellite Telecommunications
	75215	Other Telecommunications
	86012	Communication Equipment Repair and Maintenance
	87148	Telecommunications Importation and Product Integration of Pre-Manufactured Electronics It and Telecommunications Equipment
	96131	Providing Radio and Television Transmission Signals

Source: Government Notice, No. 33756, Government Gazette, 11th November 2010

While the MICT SETA works with employers located in the sector to develop skills, it needs to be noted that most of the skills needs, particularly ICT skills are required throughout the economy and when doing research into supply and demand and developing supply side strategies, the SETA is required to consider these.

Though the sub-sectors are wide-ranging, they are nevertheless interconnected. The sector can be disaggregated into Information Communication Technologies (ICT) producing activities and ICT using activities. It is located on the convergence between content, commerce, community and the tools that support them.

Figure 1: MICT Convergence Chain

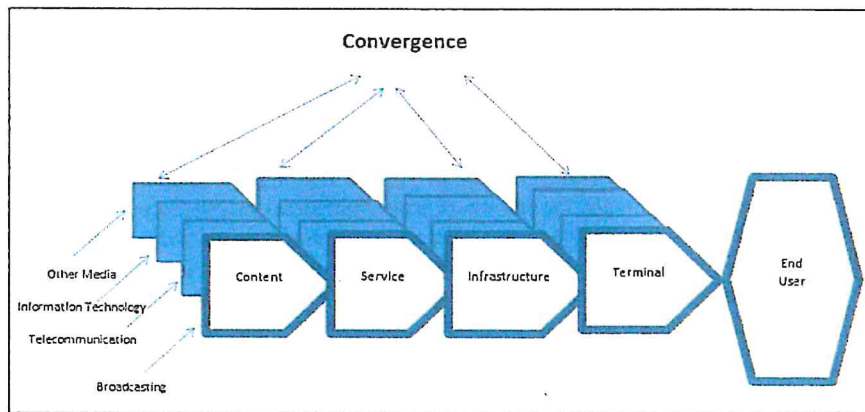


Figure 1 above, shows the covered array of segments, including news, market research, business process automation, media, data services, software, hardware, telecoms, financial and risk information, and security among others. Essentially, the sector is anchored by the role of unified communications which enable access, storage, transmission and manipulation of information.

1.3 Key role players

The key stakeholders that contribute to the sector policy and regulatory environment include industry and employer bodies, professional bodies, and state organs. There is one key government department that have links with the work of the sector. Professional associations advance professional learning and continuous development amongst professionals in the sector whilst the two major trade unions representing the interests and rights of workers in the sector are Broadcasting Electronic Media and Allied Workers Union (BEMAWU), and the Communication Workers Union (CWU). Some of the key roles players are listed in Table 2.

Table 2: Key role players in the MICT sector

Stakeholder	Role
Department of Communications	The Department is the custodian of the Integrated ICT Policy White Paper and has a number of agencies that are at the forefront of research, development and technological advancement. As one of the key role players in the sector the department has partnerships with the industry on digital skills and 4IR Technology Development, it has partnerships with Telkom, Wits, UJ and, Fort Hare. Some of the partnerships are responding directly to the 4IR skills requirements as Telkom is 3 years ahead in terms of skills development in 'Data Analytics'. Such partnerships are responding directly to the NSDP outcome 4.2 by recruiting and training learners in key priority areas such as 'Data Analytics'.
Association for Communication and Advertising South Africa (ACASA)	ACASA is the official representative body of South Africa's advertising and communications profession. It works with national and provincial government to promote agency and industry transformation and is committed to the discovery and development of new talent through corporate social responsibility programmes. In relation to outcome 4.2 of the NSDP, ACASA trains for the advertising agencies and places people within the industry. Currently it has proposed a partnership with the MICT SETA on a 3-year learning programme.
Southern African Communications Industries Association (SACIA)	SACIA is a non-profit organisation registered as a Section 21 company in South Africa. It is specifically designed to promote the adoption of professional standards and ethical business practice in the communications industry throughout Southern Africa. It seeks to further the interests of members through partnership and representation on a range of issues. Primary activities include Market Research & Intelligence Services, Networking activities, and the development of training and skills development programmes. Linking their activities to outcome 4.2 of the NSDP, SACIA has partnered with the MICT SETA on a 12 months programme where learners will undergo training in Audio Visual professional development.
Institute of Information Technology Professionals South Africa (IITPSA)	IITPSA actively engages with commerce, industry and government in order to influence policy formulation on behalf of both its own members and other stakeholders. The Society also encourages the growth of professionalism and the responsible and professional use of Information and Communications Technology throughout the South African economy. The IITPSA responds to the NSDP outcome 4.2 by working together with other interested stakeholders to accredit university programmes with computing content at South African Universities. It has established a Students Special Interest Group (SIG) at the Vaal University of Technology (Ekurhuleni Campus) where ICT students are mentored and guided, by members of the Institute and its Gauteng Chapter Committee, as potential new entrants to the ICT profession. Developmental areas that have been tackled include life skills, career opportunities, entrepreneurship and, of course, matters ICT.
State Information Technology Agency (SITA)	State Information Technology Agency (SITA) is an organisation that was established in 1999 to play a role of consolidating and coordinating the State's information technology resources in order to achieve cost savings through scale, increase delivery capabilities and enhance

Stakeholder	Role
	interoperability. Currently it is responding to the NSPD outcome 4.2 through IT learnerships programmes which also cover individuals with disabilities.
Black Information Technology Forum (BITF)	The Black Information Technology Forum is an association of Black individuals formed specifically to address the poor representation of Blacks in the information and communications technology industry as both professionals and business operators. It contributes to outcome 4.2 of the NSDP by exposing students to prospective employers through: Skills development programs such as learnerships, internships and skills programmes.
National Association of Broadcasters (NAB)	The NAB is a non-profit group of organisations and individuals working in broadcasting and related industries. NAB helps the industry regulate and promote itself grounded in the principles of democracy, diversity and freedom of expression. As a response to the NSDP outcome 4.2 it has in the past offered internships in fields such as digital marketing.
Government Information Technology Officers Council (GITOC)	GITOC is a body made up of Chief Information Officers of government departments across South Africa. It aims to discuss issues of mutual interest and to mainstream excellence in information technology across the public service. One of the main programmes of the GITOC is free open access software (FOSS), which they are trying to implement across government. As ICT oversight body of the government it aims to respond to outcome 4.2 of the NSDP by introducing ICT curriculum at the National School of Government which will be uplift and align strategic ICT pillars that are required as knowledge for Government Officials on matters pertaining to Big Data, Interoperability, Connected Government, e-Government, Cybersecurity
Information Technology Association (ITA)	The ITA represents more than 200 companies concerned with the supply of information technology equipment, systems, software and services. Prominent members include Microsoft SA, Siemens, SAP, Axiz, and IBM. The ITA works in close liaison with government, consumers and other specialist organizations. Through its close association with the MICT SETA, the ITA promotes the maintenance of high standards of IT industry technical skills in accordance with international trends. It responds to outcome 4.2 through learning programmes in partnership with the MICT SET, Microsoft SA, Siemens, SAP, Axiz, and IBM. These include skills programmes, Internships and learnership programmes.

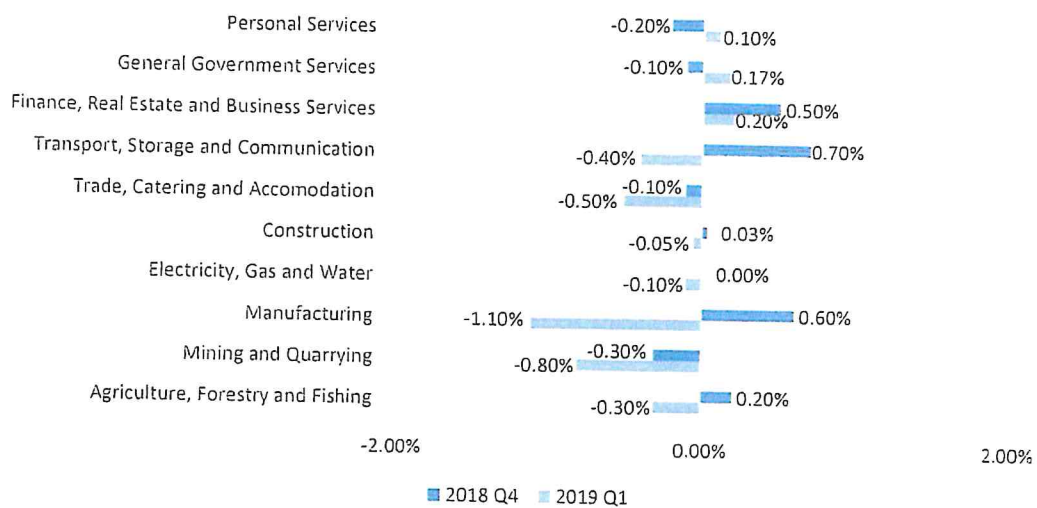
1.4 Economic performance

Although the MICT sector is characterised by rapid technological change, research points to lagging economic growth for the MICT sector. Factors such as the rise in internet advertising, the increase in private funding to the film industry, the increase in users in the consumer electronics market, the enhancements in 4G coverage and overall mobile broadband penetration, and the increase in mobile data subscriptions and traffic positively impacts the various sub-sectors within the MICT sector. However, this is plagued with several factors that negatively impact growth within the sector, including delays regarding large mergers and acquisitions, deterioration of the local currency against the dollar and euro, and on-going labour disputes in the key market sectors. Moreover, communications service providers (the largest ICT market segment in terms of spending), faced regulations that imposed decreased rates for interconnection and experienced the accelerating decline of fixed services revenue. There has also been increased pressure for data prices to be reduced.

The South African economy moved out of the technical recession in the second quarter of 2017 when GDP growth was recorded at 2.9%. The South African economy advanced 1.4% in the 4th quarter in the three months leading up to December 2018, following an upward revised 2.6% growth from the previous period and missing market expectations of a 1.8% expansion. Manufacturing and Agriculture, Forestry and Fishing had lower rates of growth and contractions were primarily recorded in mining and quarrying, internal trade and public administration. The GDP Growth Rate in South Africa averaged 2.77% from 1993 to 2018, reaching its highest point of 7.60% in the fourth quarter of 1994 and a record low of -6.10% in the first quarter of 2009 (StatsSA, 2019). Figure 2 below compares different sectors and their contribution to GDP. In the last quarter of 2018, the sector that contributed

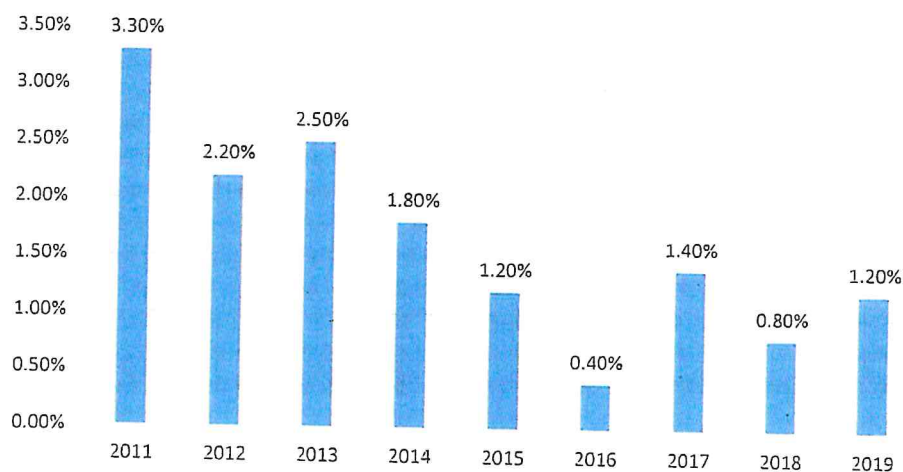
the most to GDP was Transport, Storage and Communication. The first quarter of 2019 generally demonstrated poor performance across all sectors, including some contractions.

Figure 2: Sector Contribution to GDP



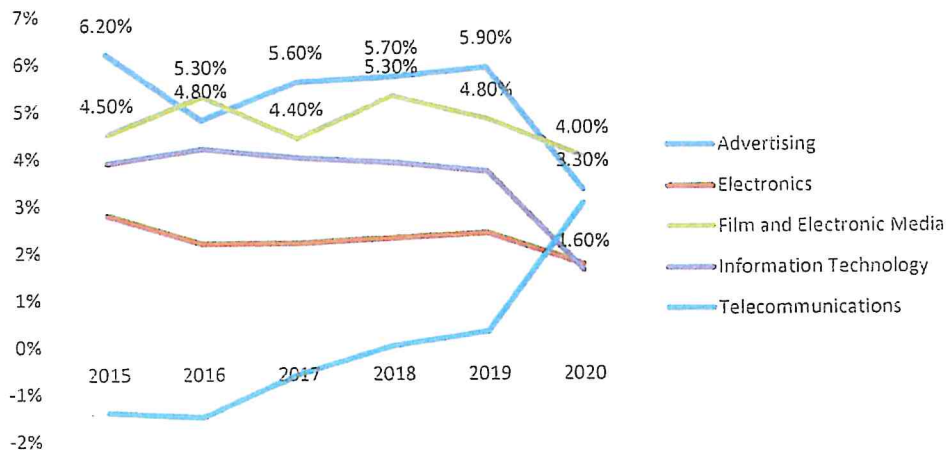
The South African economy in 2018 experienced a decline in the first two quarters followed by a positive growth in the third and fourth quarters. In the wake of a decade of economic weakness, the economy appears to have begun to recover. The decline in quarter 1 of 2.7% was exacerbated by a further 0.5% in quarter 2 followed by positive growth of 2.6% in quarter 3 and 1.4% in quarter 4, as illustrated in the figure below. This positively impacted real annual growth at 0.8% (StatsSA, 2019)

Figure 3: South African Annual GDP Growth



The National Treasury has revised GDP growth forecast for 2019 to 1.5% from an estimated 1.7% at the Medium-Term Budget Policy Statement. This is due to a fragile recovery in employment and investment and a less supportive global trade environment. Real GDP growth is, however, expected to improve to 2.1% in 2021. (National Treasury, 2019)

Figure 4: Forecast sub-sector growth rates



Source: Frost&Sullivan, 2018; PwC, 2018; IDC, 2018

The South Africa's nominal GDP at market prices in 2018 was R4.9 trillion, a R220 billion increase from 2017 (StatsSA, 2019). The MICT sector is however estimated to have a combined GDP exceeding R300 billion. The National Treasury has revised GDP growth forecast for 2019 to 1.5% from an estimated 1.7% at the Medium-Term Budget Policy Statement. This is due to a fragile recovery in employment and investment and a less supportive global trade environment. Real GDP growth is, however, expected to improve to 2.1% in 2021. { CITATION Nat19 \l 7177 }(National Treasury, 2019)}

Figure 4 shows the growth rates for the sub-sectors as well as their respective forecasted growth. The economic performance in the MICT SETA sectors are briefly discussed below:

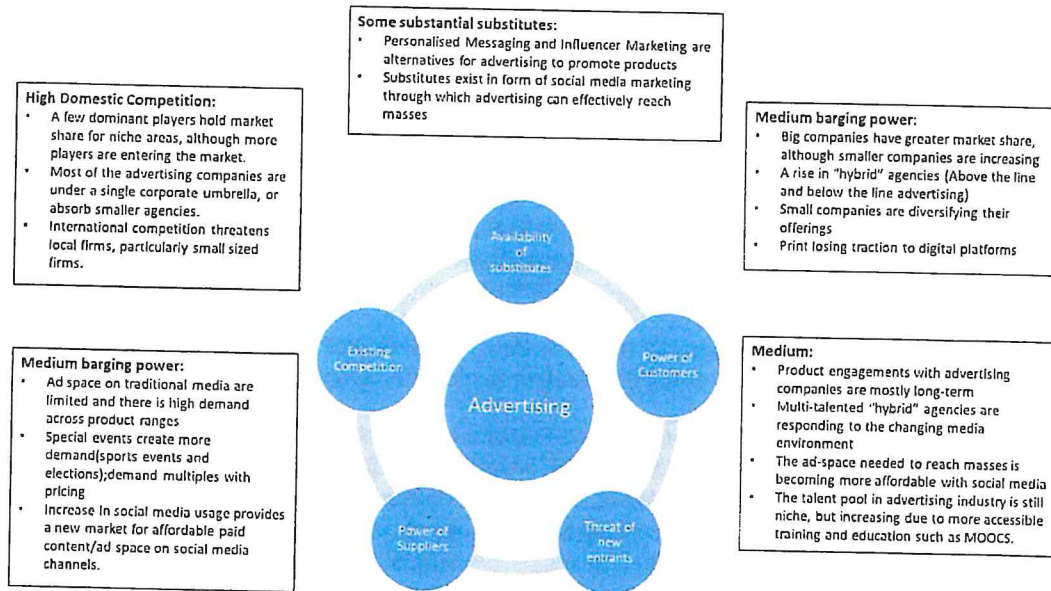
- At the end of 2018, the overall ICT market in South Africa is forecast to reach R248 billion (\$21.4 billion), and R273 billion (\$23.4 billion) by 2021. This represents a compound annual growth rate (CAGR) of 2.9% (IDC, 2017). The IT sector is projected to grow at a rate of 1.6%.
- The South African content production industry is valued at an estimated R5.5 billion (\$800 million) a year and the film and electronic media is forecasted to grow by 4,0% in 2020 (Gauteng Film Commission, 2019 & PwC, 2018).
- Revenue in the South African Advertising industry is forecast to increase to R54.194 billion in 2021 from R45.283 billion in 2016, which represents a 3.7% CAGR (PwC, 2017). Total Advertising Revenue in 2018 amounted to R36.638 billion, an increase of 3.7% from 2017 (ICASA, 2019). The industry is projected to grow by 3,3% in 2020 (PwC, 2018).
- Consumer Electronics revenue is expected to show an annual growth rate (CAGR 2019-2023) of 7.7% (Statista, 2019). The electronics subsector is estimated to reach 1,6% in 2020. Total telecommunications revenue increased by 6.4% over the period 2015-2018 (ICASA, 2019).

The analysis of economic performance of the MICT sub-sectors uses Porter's Five Forces as a framework. The Porter's framework analyses the subsectors beyond economic growth and considers competition in the industry, potential of new entrants into the industry, power of suppliers, power of customers and threat of substitute products. This is used to foreground the key skills development issues in the sector.

1.4.1 Advertising

South Africa's total advertising revenue increased by 1.9 % year-on-year in 2018 (Hunter, 2018). This growth rate is reflective of the current economic climate in South Africa. Despite this, revenue in this industry is forecast to increase to R148.8 billion in 2019 from R129.2 billion in 2017 while the CAGR to 2022 is forecast at 6.5% (PWC, 2019). In terms of absolute growth, internet advertising provided the biggest contribution, with a CAGR of 13% to 2022. TV advertising, once the largest segment, is forecasted to see a 3.8% CAGR which indicates that Internet advertising will greatly exceed TV advertising while newspapers will lose more than R1 billion (PWC, 2019). Much of the rise in internet advertising revenue, excluding Google and Facebook, is due to lower quality content that is often user generated. This is significantly more revenue generating than expensive, high quality content. The figure below provides the sub-sector's analysis according to Porter's Five Forces.

Figure 5: Advertising Porter's Analysis



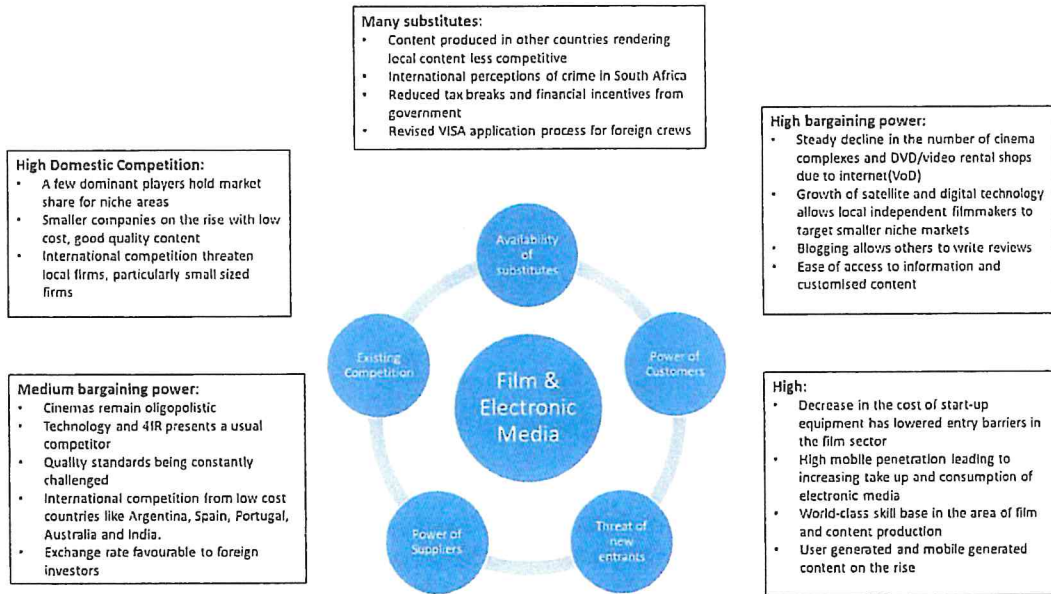
1.4.2 Film and Electronic Media

The film market in South Africa will see growth at a 5.6% CAGR to 2019. Total revenue, including box office and cinema advertising, in the film sector, is forecast to reach R2.1 billion in 2022, up from R1.8 billion in 2017, at a 3.9% CAGR. Due to the negative effect of the rand on local production, only 25 of an overall 225 films were released. Box office revenue of R1.2 billion in 2017 represented a 1.8% increase. It is forecast that by 2022, there will be 831 cinema screens, all digital. Box office revenue is expected to reach R1.4 billion by 2022 and cinema advertising will account for 33% of total cinema revenue by 2022, when it is forecast to be worth R708 million (PWC, 2019).

According to the National Film and Video Foundation (NFVF), the film industry has the potential to generate significant returns for the country in which the films get shot. The production of a popular film can make a nation an ideal tourist destination as well as increase investment into the economy. In terms of economic growth, "From the beginning of the production stage to the actual editing of the final film and exhibition, the industry contributes to the economy, revenue, job creation and economic activity" (NFVF, 2017).

New VISA and immigration regulations, including FIVA (Film Industry Visa Assistance) will be positive in the long term, but may create complications in the short term as applicants become familiar with the new processes. The figure below provides the sub-sector's analysis according to Porter's Five Forces.

Figure 6: Film and Electronic Media Porter's Analysis



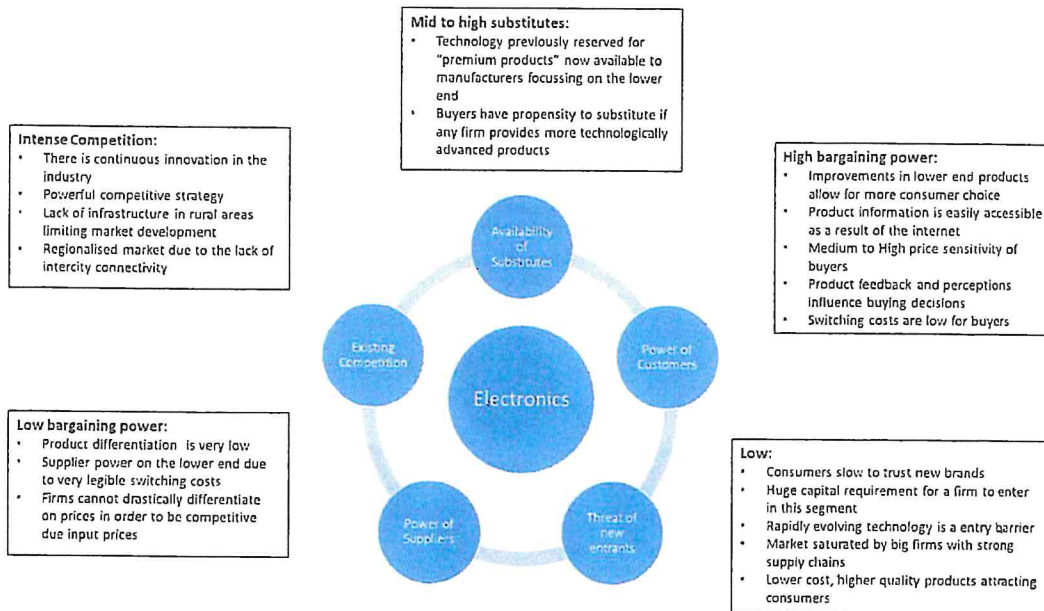
The development of the film industry in South Africa was mostly concentrated in the Gauteng (54.8%), Western Cape (23.8%), KwaZulu-Natal (9.5%) and Limpopo (9.5%) provinces in 2016/17 (NFVF, 2017). Most of the companies are within the pre-production (38%), production (38%) and post-production (36%) stages. Feature films (27.3%) and documentaries (27.3%) are what is filmed most in the country, with animation (3.0%) being the least produced.

1.4.3 Electronics

South Africa's persistently poor economic performance, rising utility prices and increased costs of living negatively affects the economy, however, despite these challenges consumer electronics continue to record positive growth rates. According to (Statista, 2017) the Electronics and Media industry in South Africa consists of physical media, consumer electronics and communication devices, amongst others. Revenue in the Electronics and Media industry is forecast to show a CAGR of 8.8% between 2018 and 2022, which results in a market volume of \$1.477 billion in 2022.

The number of users in the consumer electronics market was estimated at 7.48 million in 2018. By 2022, the number is predicted to reach 9.51 million. The user penetration rate of the consumer electronics market was estimated at 13.07% in 2018. The figure below provides the sub-sector's analysis according to Porter's Five Forces.

Figure 7: Electronics Porter's Analysis

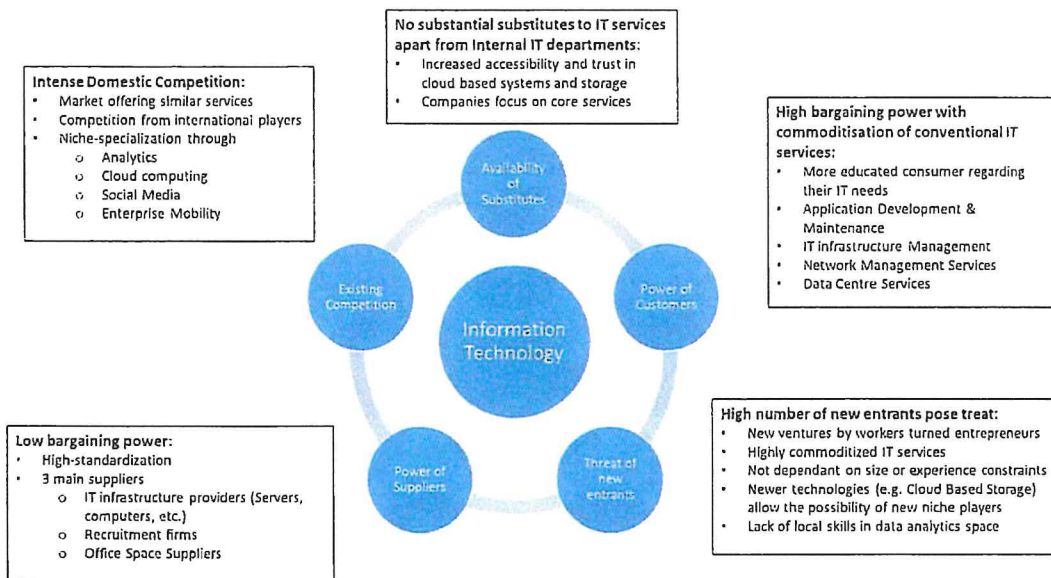


When looking at the age categories of users in the Electronics and Media industry, 25-34-year olds make up the greatest portion (35.78%) followed by 18-24-year olds (25.14%). In terms of the gender divide, males account for the bulk of the users (57.2%) with females not too far behind at 42.8%. Also, 43.43% of the users are high income earners (Statista, 2018).

1.4.4 Information Technology (IT)

The South African ICT sector is well established. The sector market is the largest in Africa and contributes approximately 8.2% to South Africa's GDP. South Africa serves as the African leader of the ICT industry. Also, in 2017, the country was predicted to have had the greatest ICT expenditure across the Middle East, Turkey and Africa regions. In the years 2015 – 2019, ICT sector is recorded to have increased its combined revenue by 6.5% with a positive growth of 12.2% from R204 billion in 2017 to R229 billion in 2018. Telecommunication services revenue increased by 14.4%, and broadcasting services revenue increased by 3.7% and postal services revenue showing a declining trend, decreasing by 0.1% (ICASA, 2019). At the end of 2018, the overall ICT market in South Africa was R229 billion (ICASA, 2019), and is forecast to reach R273 billion (\$23.4 billion) by 2021. This represents a CAGR of 2.9% (IDC, 2017). The figure below provides the sub-sector's analysis according to Porter's Five Forces.

Figure 8: Information Technology Porter's Analysis



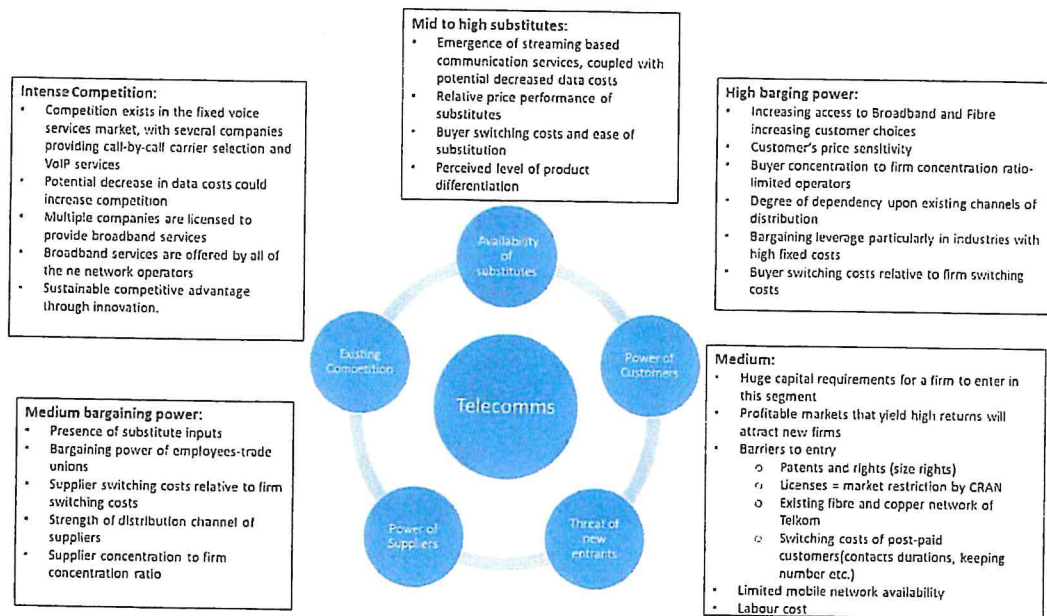
South Africa ranked 46th out of 89 countries in the 2018 Global Connectivity Index, this is the same ranking achieved in 2017. Factors that contributed to this position is the enhancement in ICT investment and international internet bandwidth as well as average performance in terms of data centres and big data performance. However, it should be noted that the country's Fibre to the House (FTTH) and fixed broadband and telecom investment falls behind, which could negatively impact further progress in the usage of data and cloud services. Going forward, South Africa should start the development of 5G as this is predicted to dominate mobile subscriptions by 2022 in Africa (Huawei, 2017).

1.4.5 Telecommunications

According to StatsSA, 87.0% of households in the country had access to a cellular phone whilst 8% shared a phone and 5% did not use a phone at all (Silver, et al., 2019). Household consumption expenditure on communication increased by 4,68% from June 2017 to June 2018 (Anon., 2018). In terms of economic growth, the transport, storage, and communication sector grew by 9.55% in 2018.

Revenue in the telecommunications sector is broken up into total mobile services revenue, total fixed internet and data revenue, total fixed line revenue as well as total any other revenue (ICASA, 2018). The total telecommunication sector revenue increased by 14.4% in 2018 (ICASA, 2019). A breakdown of this shows an increase in total mobile services revenue by 9.7%, which is mainly due to the increase in revenue from mobile data services, voice services as well as from other mobile services which increased significantly by 282.8% while revenue from outbound roaming decreased by 47.4% in 2018. Total fixed internet and data revenue decreased by 5.9% from R18.3 billion in 2017 to R17.2 billion in 2018. This decrease is due to the decline in revenue from fixed (wired)-broadband services, revenue from other telecommunication services, including leased lines and fixed value-added telecommunication services, and revenue from other wireless-broadband services. Total fixed line revenue also declined between 2017 and 2018 by 11.1%, from R13.736 billion to R13.416. This negatively impacted the growth of the telecommunication sector. The decline in total fixed line revenue was due to decreased revenue from fixed-telephone subscription charges, revenue from fixed-telephone calls and from retail fixed-telephone services. The figure below provides the sub-sector's Five Force analysis.

Figure 9: Telecoms Porter's Analysis

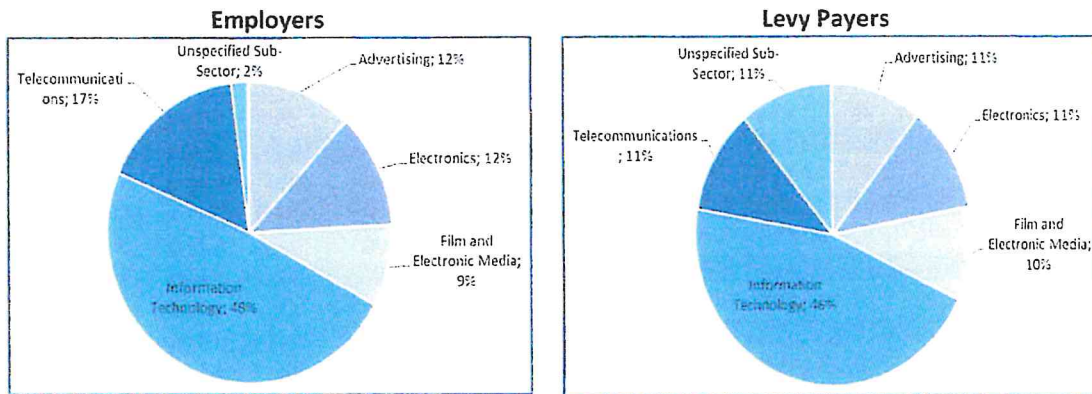


In terms of telecommunications subscriptions, ICASA states that smartphone subscriptions are at 46.9 million as at 30 September 2018 and that in the same year, South Africans had 91.7 million voice subscriptions where 80.4 million were prepaid subscriptions, and 12%, or 11.2 million, were postpaid subscriptions (Gilbert, 2019). Machine-to-machine (M2M) mobile-network subscriptions grew by 18.7% from 5.8 million in 2017 to 6.9 million in 2018 (Gilbert, 2019). The CAGR of fixed broadband subscriptions increased significantly by 65.1% over the three-year period due to an increase in DSL internet subscriptions, fibre-to-the-home/building internet subscriptions as well as other fixed (wired) broadband subscriptions. In contrast, the CAGR of fixed line subscriptions declined by 2.6% over a three-year period mainly due to an 87.0% decline of fixed wireless local loop subscriptions. This contributes to the decline in fixed line traffic by 10.2% between 2015 and 2017. Mobile data subscriptions increased between 2017 to 2018, being at 65.8 million and smartphone penetration in 2018 nearly doubled that of 2016 at 81.72% (ICASA, 2019). Between 2016 and 2017, Mobile data traffic increased by 7.1% from 61.4 million in 2017 to 65.8 million in 2018. With respect to 3G and 4G/LTE population coverage, 3G coverage remained stable at 99% in 2018 and 4G/LTE coverage increased to 85.7% in 2018 from 76.7% in 2017 (ICASA, 2019).

1.5 Employer profile

As of 2019, the MICT sector is made up of 30 727 employers, which are spread across the five sub-sectors. The Information Technology sub-sector is the largest sub-sector, accounting for 48% of employers. Telecommunications is the second largest at 17%, whilst Electronics and Advertising are tied third at 12% each. The sub-sector that accounts for the least number of employers in the MICT sector is Film and Electronic media at 9%.

Figure 10: MICT Sector of Employers per Sub-Sector



Source: MICT SETA OGS, 2019

Figure 10 shows the organisations’ paying levies and represents approximately 26% of all employers in the sector. The number of levy-paying employers has increased by 11,5% in 2019 (7902 employers), up from 7089 employers in 2018. The R500, 000 total payroll threshold has not been changed in many years implying that with payroll inflation new employers are likely to be added annually. (The levy is based on 1% of employee earnings.) The Information Technology sub-sector contributes the highest total value at 46%, amongst levy paying employers. This sub-sectors’ contribution increased from 44% in 2018. The telecommunication sub-sector, advertising sub-sector and electronics sub-sector showed a similar contribution to the sector at 11%.

Table 3 shows that between 2018 and 2019, there has been a 16% increase in the employer base of the sector, with small sized employers’ accounting for the bulk of this increase. In 2018, small sized enterprises employing less than 50 people made up around 96% of the total number of employers in the sector. Large employers’ accounts for 1% of the total employer base whilst medium companies make up 3%.

Table 3: MICT sector size of employers per Sub-Sector*

Sub-Sector	Large (150+)		Medium (50-149)		Small (0-49)	
	2018	2019	2018	2019	2018	2019
Advertising	19	19	52	51	3 029	3196
Electronics	77	75	113	114	3 173	3317
Film and Electronic Media	55	55	56	57	2 827	2983
Information Technology	171	172	357	356	12 881	13467
Telecommunications	64	65	109	107	2 922	3274
Grand Total	386	404	687	878	24 832	28653

Source: MICT SETA OGS, 2019

*Some employers did not specify size; thus, the total number of employers will differ from the ones indicated above

More than half of the employers are located within the Gauteng province (61%) followed by Western Cape (17%) and KwaZulu-Natal (11%). The Gauteng province hosts just under two thirds of the country’s ICT employers (60%). The less industrialised provinces predominantly host small employers.

Table 4: MICT Sector Size of Employers Per Province*

Province	Advertising		Electronics		Film and Electronic Media		Information Technology		Tele-communications	
	No.	%	No.	%	No.	%	No.	%	No.	%
EC	28	1.13%	91	3.60%	23	1.05%	390	3.59%	81	2.68%
FS	89	3.59%	47	1.86%	96	4.37%	169	1.56%	50	1.65%
GP	1607	64.88%	1479	58.55%	1241	56.46%	6474	59.58%	1962	64.86%
KZN	342	13.81%	294	11.64%	178	8.10%	1272	11.71%	210	6.94%
LP	3	0.12%	58	2.30%	9	0.41%	229	2.11%	102	3.37%
MP	11	0.44%	140	5.54%	26	1.18%	278	2.56%	128	4.23%
NW	28	1.13%	43	1.70%	13	0.59%	135	1.24%	32	1.06%
NC	3	0.12%	17	0.67%	9	0.41%	55	0.51%	15	0.50%
WC	366	14.78%	357	14.13%	603	27.43%	1864	17.15%	445	14.71%
Total	2477	100%	2526	100%	2198	100%	10866	100%	3025	100%

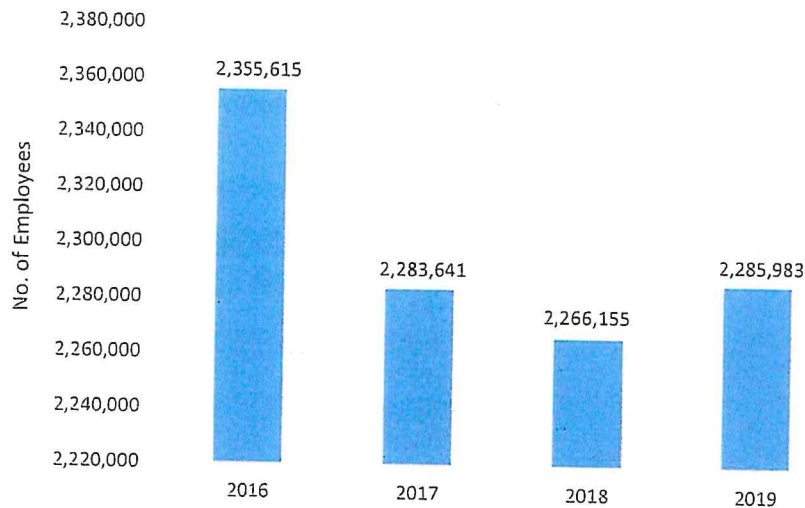
Source: MICT SETA OGS, 2019

*Some employers did not specify province; thus, the total number of employers will differ from the ones indicated above

1.6 Labour market profile

The total number of employees in the sector declined from 2,355,615 in 2016 to 2,266,155 in 2018 (Figure 11). However, as of 2018 the number of employees has started to increase, reaching 2,285,983 in 2019.

Figure 11: Employment in the MICT Sector



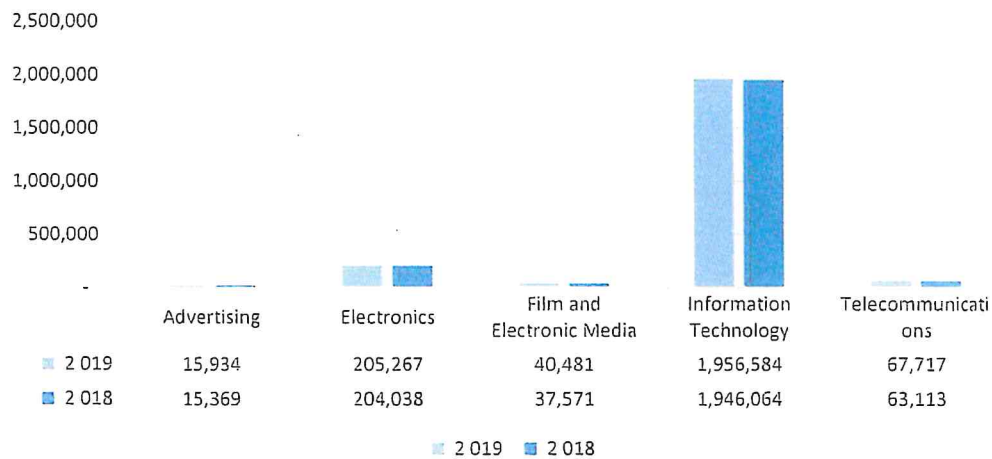
Source: MICT SETA OGS, 2019

1.6.1 Employment trends across employers in the industry

The number of employees in the sector is estimated using the Online Grants System (OGS). Total number of employees recorded from employer records in 2019 is 2 285 983. In 2018, there were 2 266 155 people employed in companies in the industry.

The figure below shows that employment in the Information Technology sub-sector is the largest of the sub-sectors with 86% of employees in 2019 and Advertising the smallest with about 1% of employees. As with the relative share of the number of companies in each sub-sector, the relative share in terms of number of employees has remained stable between 2018 and 2019.

Figure 12: Number of employees by Sub-sector

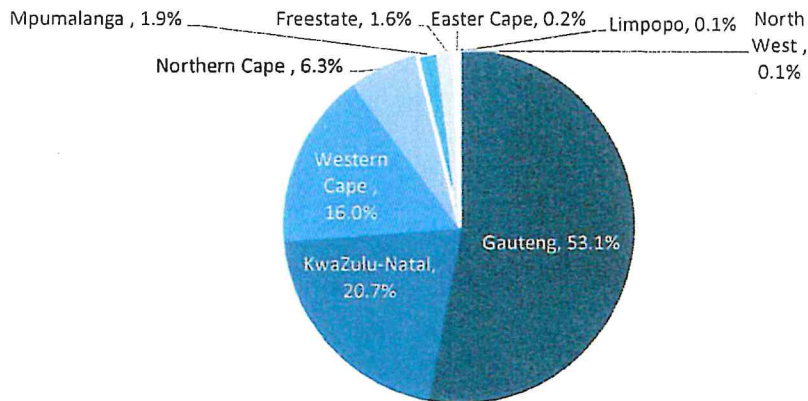


Source: MICT SETA OGS, 2019

1.6.2 Employee Geographic Distribution

The figure below shows the spread of employees, across all subsectors, across the provinces. The province with the largest number of employees is Gauteng (53.1%), followed by KwaZulu-Natal (20.7%) and the Western Cape (16%). These three provinces account for nearly 90% of all employees in the sector. Limpopo and the North West have the fewest number of employees in the country.

Figure 13: Employee Geographic Distribution



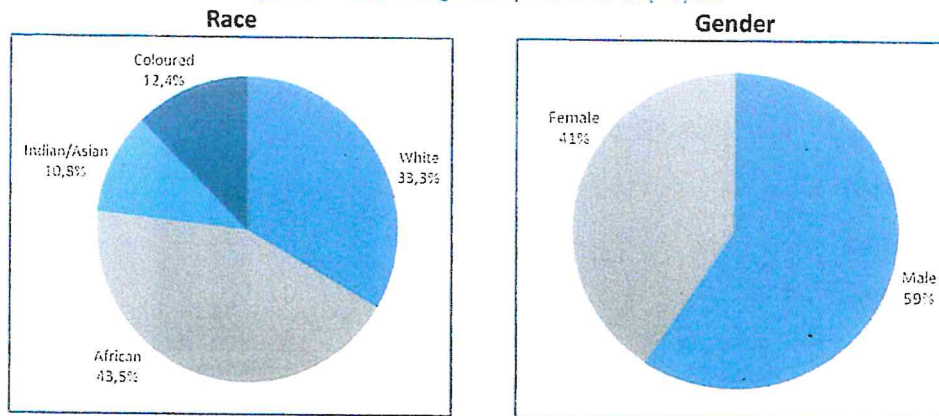
Source: MICT SETA OGS, 2019

1.6.3 Race and Gender Profile

The highest proportion of people employed in the sector are African (43,5%), followed by White (33,3%). These two race categories make up 76,8% of the total employees in the MICT sector.

Compared to 2018, the proportion of African and White employees remained fairly similar, increasing by 0,5% and decreasing by 0,7% respectively. Coloured employees account for 12,4% and Indian/Asian employees account for 10,8% of employees in the sector (Figure 14).

Figure 14: Race and gender profiles of employees



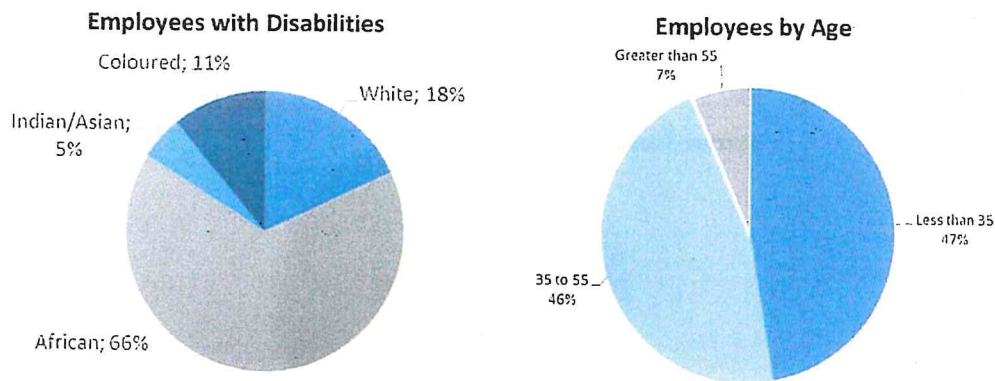
Source: MICT SETA OGS, 2019

There are more male employees (59%) in the sector as compared to females. These results have remained constant between 2018 and 2019.

1.6.4 Disability and Age Profile

Figure 15 shows that within the MICT sector, the majority of the employees with disabilities are African at 66%. This is followed by White employees (18%) and Coloured employees (11%). The Indian/Asian category only accounts for 5% of employees with disabilities within the MICT sector; this can be seen below in Figure 15. These results have remained constant between 2018 and 2019.

Figure 15: Disability and Age profiles of Employees



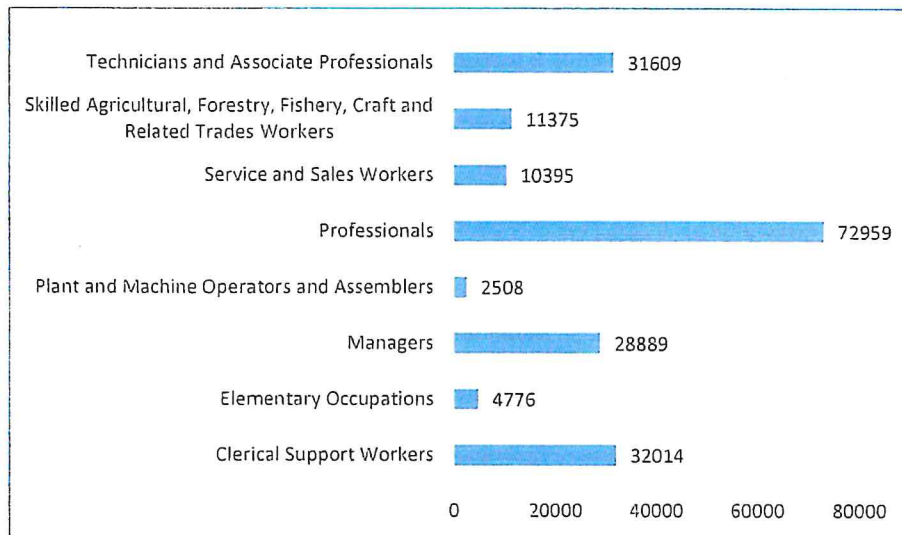
Source: MICT SETA OGS, 2019

In addition, employment in the MICT sector is dominated by younger employees. It is estimated in Figure 15 that the highest proportion of people employed in the MICT sector are younger than 35 years of age (47%). This is closely followed by employees between the ages of 35 and 55 at 46%. The sector is getting younger with the proportion of younger employees below 35 increasing annually. In 2019, the greater than 55 years age cohort accounted for 7% of the workforce.

1.6.5 Occupational segmentation

Understanding the occupational divide of employees in a sector is important; specifically, to determine which skills development interventions are required. The figure below shows Professionals are the dominant occupational category in the MICT sector. This is followed by Clerical support workers, Technicians and associate professionals, and Managers. Employment within managers, professionals, and associate professionals' categories typically require a degree, diploma, or NQF level 6 qualifications as an entry. Combined, these categories account for the bulk of employees in the sector. As compared to other economic sectors, which employ more people in elementary occupations, this sector reflects the converse and could be attributed to the professional services orientation of offerings by employers in the sector, figure below shows this breakdown.

Figure 16: Occupations by OFO major Groups



Source: MICT SETA OGS, 2019

1.7 Conclusion

In terms of economic growth, with the exception of telecommunications, the MICT sector has demonstrated declining economic performance, which is projected to continue into 2020. In terms of the labour market performance, with the exception of electronics, employment increased slightly across all sectors. The number of medium and large businesses per subsector remained largely stable. The sector race and age profiles broadly represent the demographic composition of the country with the largest proportion of representation being Africans and people younger than 35 years. With regards to the occupational segmentation, the majority of employees are within skilled occupations. A number of employers and other key role players are responding to the skills demands of 4IR through research and interventions in relatively novel areas such as big data analytics, thus competitively positioning the South African labour force.

It appears, therefore, that the MICT sector is generally investing in human resources and that there is a demand to develop skills. This demand, however, is negatively impacted by the fact that majority of the companies in the sector are small, limiting their capacity to train employees or to provide mentorship to learners.

Chapter 2: Key Skills Change Drivers

2.1 Introduction

Having explored the profile of the sector in chapter one, this chapter examines the factors influencing the demand and supply of skills in the MICT sector. The chapter draws on current literature and interviews with key stakeholders within the sector. It identifies five change drivers that are a result of the '4IR', outlining how these change drivers may or are already impacting the aspect of skills demand and supply in the MICT Sector. The chapter further analyses policies that affect skills demand and supply in the sector.

2.2 Factors Affecting Skills Demand and Supply

While the sector contributes positively to the GDP, the 4th Industrial Revolution (4IR) will alter the way communities live and work through a fusion of technologies, blurring lines between the physical, digital, and biological spheres. 4IR is a complex application of Science, Technology, Engineering and Mathematical (STEM) knowledge. In its simplicity it is an extension of 'Industrial Revolution 1, 2 and 3' with an addition of Artificial Intelligence (AI) built into machines that can think and do most things that were the sole prerogatives of the human species in the past. With South Africa pushing to be an E-Skilled economy as outlined in the National Development Plan, Vision 2030, key change drivers that affect the MICT market and the Socio-economic systems are identified and discussed below:

2.2.1 Cloud Computing

'Cloud Computing' is a key driver of digital transformation in South Africa. It is a disruptive delivery model of Information Technology (IT) services that is based on a business model that is flexible and on-demand. Microsoft defines cloud computing as the delivery of computing services—servers, storage, databases, networking, software, analytics and more—over the Internet ("the cloud"). Companies offering these computing services are called cloud providers and typically charge for cloud computing services based on usage, similar to how utility services such water or electricity are billed.

The manner in which cloud computing evolves puts pressure on skills development. For example, cloud computing has taken another level where, instead of deploying the software on the application, experts have a new type of technology called Kubernetes where a type of container can be quickly deployed on any infrastructure. People with the skills to design and deploy such technology are in high demand and often poached not only in South Africa, but by global companies. A study by the International Data Corporation (IDC) reveals that in South Africa more than 90% of South African organizations are either already engaged in developing these skills or in the process of planning for development of such skills (Nebula, 2018), with another 90% having increased their spending on cloud computing (World Wide Worx, 2018).

Additionally, 68% of South African companies state time-to-market or speed of deployment as the most important benefit of cloud computing (World Wide Worx, 2018).

2.2.2 Internet of Things (IoT)

The 'Internet of Things' (IoT) is another change driver in the MICT sector that comes with the '4IR'. It refers to the ever-growing network of physical objects that feature an internet protocol (IP) address for internet connectivity, and the communication that occurs between these objects and other Internet-enabled devices and systems. The IoT allows for remote management or monitoring of connected devices. This information can then be supplied to an AI platform, which may be tasked with responding appropriately based on the data received. IoT will continue to grow as cloud computing and cloud apps offering space expands in the coming years. IoT thus links to virtually all of the 4IR change drivers, further expanding the impact of 4IR.

There is limited recognition of emerging 4IR occupations in the OFO, thus limiting funding and formalised training opportunities in “new-age” fields such as IoT. In consultations, stakeholders expressed a need for more “IoT specialists”. However, currently no such occupation exists in the strictest sense, instead IoT specialists may emerge as specialisations of existing fields such as software development and design.

2.2.3 Big data analytics

With the emergence of the ‘4IR’, properly managing ‘Big data’ has become an important assignment for many organizations. According to experts in the field ‘Big data analytics’ can be understood as a new generation of technologies and architectures, designed to economically extract value from very large volumes of a wide variety of data, by enabling high velocity capture, discovery or analysis.

Big data has grown by more than 50% CAGR since 2010. This in turn has enabled AI uptake (Accenture South Africa, 2018). In South Africa many organizations have started to realize the potential of ‘Big Data and Analytics’. However, limited IT budgets and the dearth of skilled resources impede ‘Big Data and analytics’ initiatives across organizations in the country. Many organizations have started to consider internally developing skills by sharing resources, undertaking training programmes, and partnering with vendors. This will play a crucial role for organizations to establish a data-driven culture and encourage knowledge sharing to develop internal capabilities (IDC, 2017). The demand for highly qualified big data analysts, and artificial intelligence professionals, is outperforming supply to the point where it can take many months to fill vacancies (Business Report, 2017). The root problem of this is that big data analytics is a new field and the existing workforce is having to retrain in work with large sophisticated datasets. Competition also plays a role as larger companies recruit graduates as they are graduating, thus, making it difficult for small MICT companies to keep up with the changing labour market.

2.2.4 Information Security

Increasing digitisation has come with greater security risks. Given the increasing dependency on ICT systems, and the growing complexity of connected environments, there is strong demand for and diffusion of software and tools to ensure IT systems security at all levels. According to PWC (2017:4) South African organizations are experiencing challenges with cybercrimes. There are dire financial implications as the affected organisations are spending ten times more on investigations as the original amount lost to economic crime. The report published by PWC revealed that about 19% of organizations have had to spend between twice and ten times as much on investigations. The supply of cyber security experts is lagging not only in South Africa but globally. Law enforcement agencies currently lack the ability to swiftly investigate and prosecute these crimes whilst organisations have to constantly improve their security features to fend off potential attacks. Frost and Sullivan therefore expect backup and disaster recovery services to be the fastest-growing segment in 2018 and cyber security skills will need to keep pace.

In response to the above-mentioned skills shortages, the SETA is currently developing qualifications related to information security.

2.2.5 Artificial Intelligence and Robotics

Artificial intelligence (AI) can be defined as “different technologies that can be combined in different ways to sense, comprehend, act and learn” (Accenture South Africa, 2017). The field of robotics is a multidisciplinary study that incorporates mechanical engineering, electronic engineering, and information engineering and computer science, amongst others, to develop and operate robotic machines, including AI robots. Robots are often used to automate processes, especially when it too dangerous or expensive to utilise human workers.

Accenture notes that the growth in the development and use of AI is spurred on by complementary technologies such as big data analytics, cloud computing and the internet of things (Accenture South Africa, 2017). Examples of AI relevant to the MICT sector include cognitive robots such as autonomous drones, virtual agents such as “chatbots” and recommendation systems. Common examples of the use of AI are social media “friend suggestions” and Google Suggest, which “study” behaviour and analyse large sets of data to predict (and influence) consumer behaviour.

In 2017 Accenture predicted that “in 5 years, more than half of consumers and enterprise clients will select products and services based on a company’s AI” (Accenture South Africa, 2017). However, South Africa still lags behind in terms of improving the quality of education, research, innovation and infrastructure required to create an enabling environment for AI adoption (Accenture South Africa, 2017). This means we are not capitalising on the 1% increase in the economic growth rate predicted in an AI-rich economy (Accenture South Africa, 2017).

As with the disruption AI may bring, robotics may invalidate or speed-up manual or repetitive tasks performed by humans. An example of the use of robotics in the MICT sector is the use of drones, as opposed to handheld cameras, in filming. Drone and AI technologies may also be integrated to create autonomous drones that are able to perceive their environments and self-operate (Built In, 2019).

35% of all jobs in South Africa are currently at risk of total automation by robots, with machines being able to perform 75% of the activities that make up these jobs (Accenture South Africa, 2018). Of concern to MICT SETA is the anticipated 28, 111 electrical and electronics jobs that may be shed (Accenture South Africa, 2018). However, reskilling workers to develop and utilise robots may decrease job cuts by as much as 6% by 2025 (Accenture South Africa, 2018).

2.3 Skills Implications of Change Drivers

Change drivers affect how businesses operate and survive into the future. Thus, new ways of doing things, including skills training, are required to exploit new opportunities in the market that emerge as a result of 4IR.

The above-mentioned change drivers call for the continued development of technologies and skills. Whilst it may be true that 4IR may invalidate jobs that place emphasis on routine or menial tasks, it also presents an opportunity for the creation and/or advancement of jobs. To this effect, South African organisations are increasingly investing in 4IR technologies. For instance, 90% of South African companies are developing cloud computing skills (World Wide Worx, 2018) (Nebula, 2018) and Big data has grown by more than 50% CAGR since 2010, which in turn has enabled AI uptake (Accenture South Africa, 2018). However, the funding, formalised training and overall development of emerging occupations is hampered by limited recognition of emerging 4IR occupations in the OFO. In general, due to the limited number of candidates possessing 4IR relevant skills or an appropriate skills base to expand from, there is increased competition amongst employers for the few relevantly skilled candidates in the sector, thus exerting further pressure to accelerate the development of skills.

Accenture proposes three key interventions to adapt to the increasing use of robotics and automation: accelerating the reskilling of workers, redirecting the workforce to areas that create new forms of value and strengthening the talent pipeline from its source (Accenture South Africa, 2018). These suggestions may be adopted for other change drivers and speak to the need for increased research output, technical upskilling (especially for unskilled labourers) and collaboration amongst stakeholders. To this effect, the SETA is actively engaged with stakeholders such as the QCTO, training providers and industry in the development of new qualifications and improvement of existing qualifications to meet 4IR demands.

2.4 Policy Frameworks Affecting Skills Demand and Supply

South Africa's development trajectory is underpinned by the National Development Plan (NDP) which challenges the country to achieve sustained levels of economic growth through to 2030. There are a range of "levers", "pillars" or policy interventions that are understood to contribute to this planned growth. The MICT sector is an integral part of South African society and is impacted by various policy interventions some of which are outlined in the table below.

Table 5: MICT Sector Policy interventions

Planning Priority	Skills Implications
National Development Plan	<p>The NDP Vision 2030 (November 2011) identifies as one of the core priorities, reducing unemployment to 6% by 2030. Other objectives include eradicating poverty and reducing inequality. In meeting the objectives of the plan, the following are identified:</p> <ul style="list-style-type: none"> – A larger, more effective innovation system closely aligned with firms that operate in sectors consistent with the growth strategy. – Support for small businesses through better coordination of relevant agencies, development of finance institutions, and public and private incubators. – An expanded skills base through better education and vocational training. – Identify business incubation for SMEs generally and the expansion of business services in particular as priority actions for growth and development. <p>The MICT sector is at the centre of the National System of Innovation and would thus have to play a leading role in supporting effectiveness and efficiency.</p>
White Paper on Post Schooling Education and Training (WP-PSET)	<p>The white paper envisages an expanded, effective and integrated post-school system in South Africa. It is premised on achieving:</p> <ul style="list-style-type: none"> – Expanded access to TVET and University education – Establishment of community colleges and skills centres, to mainstream vocational education and training – Establishment of a national skills planning mechanism within DHET – A strengthened NSA to perform a monitoring and evaluation role in the skills system – Opening up workplaces to give more youth access to work integrated learning opportunities <p>The white paper further notes the potential for a significant restructuring of the skills system resulting with a further reduction of SETA numbers over the medium to long term. The white paper calls for an efficient skills development system where strategic plans form the foundation of the service level agreements that SETAs sign with DHET.</p>
National Skills Development Plan (NSDP)	<p>With the culmination of the National Skills Development Strategy (NSDS III), the NSDP is set to replace NSDS III as the chief policy intervention guiding the SETA. The NSDP is informed by and consolidates the NDP, NGP, WP-PSET and IPAP and seeks to "improve access to occupations in high demand and priority skills aligned to supporting economic growth, employment creation and social development whilst also seeking to address systemic considerations" (DHET, 2019). A call for increased emphasis on improving "both basic skills and technical skills, with a specific focus on 'historically disadvantaged individuals'" is made and eight outcomes are presented to this effect. In addressing the NSDP and new SETA landscape MICT SETA has incorporated and aligned the outcomes into its Recommended Priority Actions (chapter 6.3), thus ensuring continued relevance and responsiveness to key issues.</p>
New Growth Path (NGP)	<p>The NGP presents a 10-programme micro economic package of which this is the fourth. This programme focuses on meeting the shortages in important skills for the economy and sets targets for:</p> <ul style="list-style-type: none"> – the training of engineers underpinned by improved science and mathematics education and expanded bridging programmes for HE courses – improved skills for workers in every job through the provision of certificated programmes facilitated, financed and managed by SETAs – an expanded resourced TVET college system that produces higher graduation rates – provision of ICT skills in schooling, adult education and public service <p>The MICT sector, the NGP places emphasis on the development of ICT skills, as well as the increased supply of highly skilled labour in the economy.</p>

<i>Planning Priority</i>	<i>Skills Implications</i>
Industrial Policy Action Plan (IPAP)	<p>The IPAP has identified a number of priority sectors which it aims to support for development in the country. Those that have a direct link with the MICT sector include:</p> <ul style="list-style-type: none"> - Facilitation of the upgrade of manufacturing facilities and capabilities to increase domestic production and growth of exports - Commercialisation of technologies. Projects to be pursued will include the establishment of a South African garment-sizing database using three-dimensional (3-D) body-scanner technology, and computer-aided design using 3-D scanner data - Skills development for the business process outsourcing sector <p>As stakeholders in the sector start to engage in these programmes, the MICT SETA would be a skills development partner, ensuring that the requisite skills are being developed.</p>
National Integrated ICT Policy White Paper	<p>The National Integrated ICT Policy White Paper, published in September 2016 by the Department of Telecommunications and Postal Services (DTPS), replaces the separate white papers on telecommunication (1996) and postal services (1998). The policy outlines plan for the rollout of broadband services across the country and directs the allocation of spectrum to all licensed operators, new entrants and SMMEs.</p> <p>The White Paper also covers interventions to boost the manufacturing and software development sectors particularly through advancing affordable devices and innovative services and applications relevant to the South African context. The aim is to support for development in the country. The direct link with the MICT sector includes:</p> <ul style="list-style-type: none"> - Facilitate the upgrade of manufacturing facilities and capabilities to increase domestic production and growth of exports - Commercialisation of technologies - Skills development for the business process outsourcing sector.

2.5 Conclusion

With the Presidential Commission on the Fourth Industrial Revolution established, it seems South Africa is set to follow a high skills digital path. The change drivers in the sector suggest ever-increasing access in digital spectrum and an ever-widening choice of content for entertainment and new apps. Therefore, skills development must follow course with specialised skills to set up and maintain new technologies. However, that has to be balanced with solving for lower-end skills. Finding a means to ensure inclusive digital revolution means paying attention to those still becoming literate in electronic technology. Knowing where to focus resources has been a challenge for the MICT SETA in the past. However, with the renewed government commitment to leveraging technology for development and to the transformation of the ICT sector, additional resources are to be leveraged for skills development.

Chapter 3: Occupational Shortages and Skills Gaps

3.1 Introduction

This section explores the extent and nature of demand for skilled labour in the MICT sector. The chapter also gauges the type and extent of training available to the sector. In order to compile the Sectoral Priority Occupations list and occupational shortages, an analysis of WSP submissions by employers was conducted. However, certain limitations to the WSP were realised, including the broad way in which occupations are drawn and the fact that WSPs represent only levy-paying stakeholders and may therefore not include the full spectrum of scarce skills needed by smaller sized companies. A survey was therefore distributed to key stakeholders in the industry to address the limitations of the WSP. This survey (distributed via Survey Monkey) asked respondents to identify key hard to fill vacancies (HTFVs), skills gaps and change drivers in the sector. Further information was gathered through stakeholder interviews. The research thus triangulated various sources of data to provide as complete and valid picture of skills demand and supply in the sector.

3.2 Sectoral Occupational Demand

3.2.1 Hard to fill vacancies

The table below provides the top 15 hard to fill vacancies across the MICT Sector by relative demand and contribution to 4IR. The primary indicator for a HTFV is the quantity needed, which is then ranked against other occupations in an index according to its relative contribution to 4IR and relative demand, both of which are based on survey input. It may be observed later in this chapter that this table is the basis for the Sectoral Priority Occupations List, barring the relegation of Multimedia Designer, Developer Programmer and Electronic Engineering Technician based on their relatively poor contributions to 4IR and sector demand.

Table 6: Top 15 Hard to Fill Occupations by Relative Demand and Contribution to 4IR

Occupation Code	Occupation	Quantity Needed	Relative Contribution to 4IR (ranked out of 15)	Relative Demand (ranked out of 15)
2017-251201	Software Developer	2434	7	3
2017-351301	Computer Network Technician	1948	8	12
2017-216603	Multimedia Designer	824	10	13
2017-251203	Developer Programmer	823	1	9
2017-252301	Computer Network and Systems Engineer	731	6	2
2017-252901	ICT Security Specialist	713	9	4
2017-251101	ICT Systems Analyst	676	11	5
2017-251202	Programmer Analyst	397	12	6
2017-242101	Management Consultant (Business Analyst)	359	4	11
2017-311401	Electronic Engineering Technician	276	14	8
2017-243101	Advertising Specialist	224	2	1
2017-215303	Telecommunications Network Engineer	164	5	10
2017-252101	Database Designers and Administrator	114	3	7
2017-214401	Mechanical Engineer	22	13	14
2017-215101	Electrical Design Engineer	19	15	15

Employers in the WSPs report a number of reasons for the extent of demand for additional labour. For 59% of occupations in need, employers have cited a lack of skilled people in the labour market as the main reason for the occupation being hard to fill. Other reasons include technological change and new work practices which accounts for 12% of need whilst employment equity considerations account for 11%.

3.2.2 Advertising hard to fill vacancies

Using the OFO, the table below provides the top occupations with vacancies that are hard to fill in the Advertising sub-sector. These five vacancies have been identified by stakeholders and include Multimedia Designer, Advertising Specialist, Digital Artist, Copywriter and Web Developer.

Table 7: Advertising Hard to Fill Vacancies

Occupation	Reason	Quantity Needed
2017-216603 - Multimedia Designer	Lack of experienced candidates	824
2017-264201 - Copywriter	Lack of experienced candidates	513
2017-216601 - Digital Artist	Lack of experienced candidates	309
2017-243101 - Advertising Specialist	Technological change and new work practices	224
2017-251302 - Web Developer	Lack of experienced candidates	173

Stakeholders in the advertising sector noted that Multimedia Designer was the most difficult occupation to find suitably qualified people for. The majority of stakeholders in the sector indicated that "lack of experienced candidates" was the reason for the hard to fill vacancies, with the reason for Advertising Specialist being "Technological change and new work practices". Stakeholders attributed the lack of experienced candidates to lagging literacy skills, with the dominance of visual imagery over a word culture. Moreover, there was a sense in which advertising was no longer the glamorous occupation it once was and that salaries in the sector were relatively lower than in the past.

3.2.3 Film and Electronic Media sub-sector occupations with hard to fill vacancies

South African locations have become popular in the film industry for film productions. Whilst this has resulted in the utilisation of local skills, international filmmakers tend to bring their own casts and crew. In this regard, there have been some reported challenges with Home Affairs processing permits to enable incumbents to proceed with their work.

Table 8 presents the hard to fill vacancies of the film and Electronic Media subsector. The five hard to fill vacancies were identified in the workplace skills plans, as well as through verification processes and sector research.

Table 8: Film and Electronic Media Hard to Fill Vacancies

Occupation	Reason	Quantity Needed
2017-243203 - Corporate Communication Manager	Lack of experienced candidates	776
2017-265412 - Media Producer	Lack of experienced candidates	593
2017-352101 - Broadcast Transmitter Operator	Lack of experienced candidates	574
2017-264201 - Copywriter	Lack of experienced candidates	513
2017-265403 - Film and Video Editor	Lack of experienced candidates	302

It appears the areas of scarcity for most of the Film and Electronic Media occupations exists primarily in more technical roles specific to the sector and less on generic skills such as HR and Finance. Stakeholders noted that the occupations were very broad in definition. For example, video editing fails to describe the skills gaps related to the introduction of new technologies such as 4K, 6K and 8K.

Additionally, stakeholders noted that due to a lack of experienced candidates, 'Copywriter' was one of the top 5 hard to fill vacancies. This is evidenced by the fact that very few young people were applying to study copywriting at education and training institutions.

It was also found that although people may have technical competence, they were not always able to translate that into the overall concept and visual the director has in mind. Location scouts, for example, need a sense of what the final picture will look like on screen as well as the practicalities of moving equipment around. Sound engineers may know how to collect and mix samples of sound, but in a movie production they need to know how to work with voice and with silence too.

3.2.4 Electronics, Information Technology and Telecommunications (ICT) sub-sector occupations with hard to fill vacancies

There are similarities between the Electronics, Telecommunications and Information Technology subsectors. Consequently, these subsectors are addressed as one ICT subsector due to the overlapping nature of their occupational demands. To accommodate this amalgamation and the larger size of the ICT subsector provision is made for 10 hard to fill vacancies instead of 5.

In the ICT subsector, where rollout of new technologies and modernisation of systems and equipment is taking place, employers tend to recruit locally thus temporarily reducing the South African labour pool until such projects are completed.

Table 9 presents the top 10 hard to fill vacancies within the ICT sub-sector over the next year. For this sub-sector, higher scarcity is being estimated in computer related and electronics related occupations. With the constant changes and convergence in these sub-sectors, especially the emergence of cloud computing, big data and organisations moving into open source platforms, the stakeholders are reporting a need for the IT professionals to remain knowledgeable, often with new technologies rendering some practitioners obsolete. Although there might be some supply of general skills, there is often a need for practitioners to have experience and background in mobile applications as this is an emerging area.

Table 9: ICT Occupations with Hard to Fill Vacancies

Occupation	Reasons	Quantity Needed
2017-251201 - Software Developer	Lack of experienced candidates	2434
2017-351301 - Computer Network Technician	Lack of experienced candidates	1948
2017-251203 - Developer Programmer	Lack of experienced candidates	823
2017-351201 - ICT Communications Assistant	Lack of experienced candidates	755
2017-252301 - Computer Network and Systems Engineer	Lack of experienced candidates	731
2017-252901 - ICT Security Specialist	Lack of experienced candidates	713
2017-251101 - ICT Systems Analyst	Lack of experienced candidates	676
2017-351401 - Web Technician	Lack of experienced candidates	514
2017-252201 - Systems Administrator	Lack of experienced candidates	405
2017-251202 - Programmer Analyst	Lack of experienced candidates	397

Software developer, programmer analyst and developer programmer are some of the top 10 occupations which are hard to fill within the sub-sector. The top programming languages were found to be .NET, C#, C++, Java and VB. On the other hand, there has been a decline in demand for people to maintain legacy systems (such as COBOL developers). In addition, many companies were adopting the agile project management methodology. As a result, "Scrum Masters" were in demand, though there are very few people in the country that have certified qualifications to work with the method. With regard to telecommunications which incorporates both the retail side and the technical side, Network specific professionals, such as computer network technician and computer network and systems engineer, continued to be in demand.

3.3 Skills Gaps

The MICT sector is increasingly operating in an ever-changing environment where new trends are emerging all the time. Workers in the sector have to constantly upgrade their skills to keep abreast of the latest developments. At the same time as people skilled in technologies move on or retire, there is still a need for maintenance of these old technologies. That means gaps exist for old technologies where new entrants lack such skills as well as for all the new technologies being rapidly introduced. The broad categories of critical skills gaps that exist amongst employees working across the five sub-sectors of the MICT are management and leadership skills, customer service skills, technical skills and production efficiency skills. These are further outlined in the table below by occupation (with OFO codes) and OFO Major group.

In the MICT sector most occupations, and consequently skills gaps, lie in the mid-level to senior groups. There were no skills gaps represented in the Lower-Level (Plant operators and elementary occupations) group.

Table 10: Skills gaps and the top occupations that they apply to

Skills Gap	Senior (managers and professionals)	Mid-Level (technicians, associates, artisans, clerical)
Project Management	- 2017-121905 - Programme Manager - 2017-133102 - ICT Project Manager - 2017-242101 - Management Consultant	N/A
Management Skills	- 2017-121905 - Programme Manager - 2017-132107 - Quality Manager	N/A
Technical Skills	- 2017-251201 - Software Developer	- 2017-352201 - Telecommunications Technical Officer or Technologist
Customer Service	- 2017-252301 - Computer Network and Systems Engineer - 2017-243401 - ICT Account Manager	
Communication	- 2017-252902 - Technical ICT Support Services Manager - 2017-251301 - Multimedia Specialist	- 2017-422202 - Outbound Contact Centre Consultant
Interpersonal skills	- 2017-243201 - Communication Coordinator - 2017-251201 - Software Developer	- 2017-333910 - Business Support Coordinator - 2017-351302 - Geographic Information Systems Technician
Time management	- 2017-252902 - Technical ICT Support Services Manager	- 2017-441903 - Program or Project Administrators
Programming	- 2017-251301 - Multimedia Specialist - 2017-251101 - ICT Systems Analyst - 2017-252301 - Computer Network and Systems Engineer	N/A

Skills Gap	Senior (managers and professionals)	Mid-Level (technicians, associates, artisans, clerical)
Health and safety	N/A	- 2017-352201 - Telecommunications Technical Officer or Technologist
Productivity tools	N/A	- 2017-351301 - Computer Network Technician - 2017-333903 - Sales Representative (Business Services) - 2017-332206 - Sales Representative (Photographic Equipment and Supplies)
Professional etiquette	N/A	- 2017-422601 - Receptionist (General) - 2017-351301 - Computer Network Technician

Stakeholders in the sector indicated that employers increasingly require people that have more generalist skills such as communication skills, productivity tools and time management, rather than specialist skills. With greater convergence of technologies, people would need to be able to move seamlessly between several differing technologies.

3.4 Extent and nature of supply

This section looks at the provision of education and training of skills, with the focus specifically on MICT-accredited qualifications. It also reviews provision in higher education, TVET colleges and vendor programmes. It assesses the gaps in the supply pipeline in order to help identify where the MICT SETA can most effectively intervene.

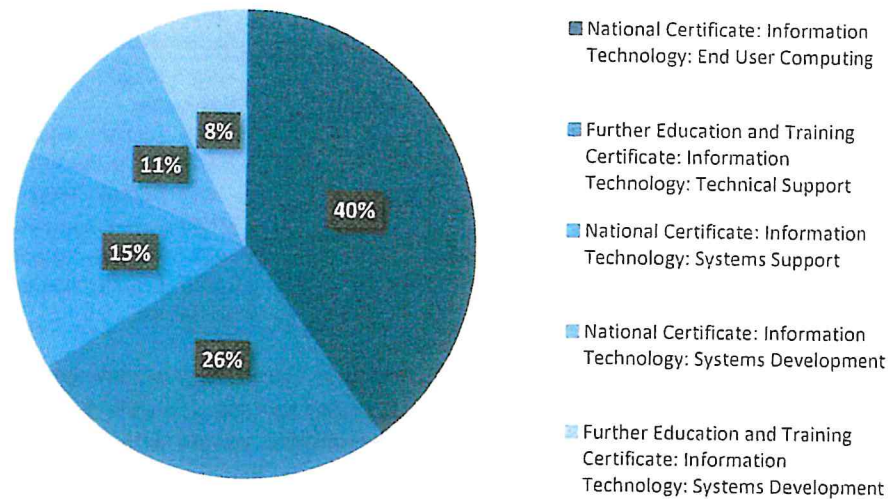
3.4.1 MICT SETA Accredited Qualifications

In 2018, of the 40 qualifications the MICT SETA has listed on the NQF, 18 registered new learners.

An analysis of the total learnerships and skills programmes population to date as reflected below indicates that a significant portion of total enrolment has been in the following five qualifications:

- National Certificate: Information Technology: End User Computing (NQF 3)
- Further Education and Training Certificate: Information Technology: Technical Support (NQF 4)
- National Certificate: Information Technology: Systems Support (NQF 4 and 5)
- National Certificate: Information Technology: Systems Development (NQF 4 and 5)
- Further Education and Training Certificate: Information Technology: Systems Development (NQF 4)

Figure 17: Top 5 Qualifications enrolled for



Source: MICT SETA OGS, 2017

The National Certificate in End User Computing draws the most learners annually. It is at level 3 on the NQF and offers only foundational and generic skills. Although e-skills are argued to be an essential condition for development, basic computer literacy is not listed as a critical or scarce skill. The model now will be to integrate end-user skills into other courses including technical courses.

Two level 5 National Certificates in ICT – for Systems Support and Systems Development – do match demand for occupations in high demand within the sector. Systems Development, for example, allows for specialisation in one of the following disciplines: Procedural Programming; Object Oriented Programming; Fourth Generation Language Programming; Website development; Multimedia; Electronic Commerce.

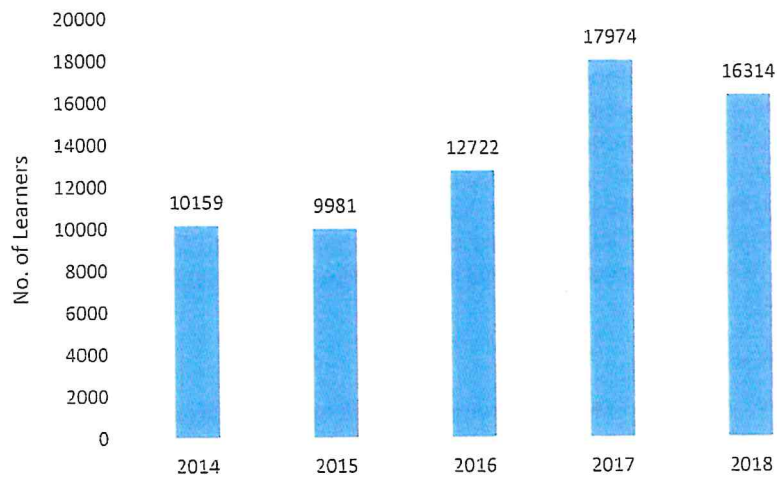
Stakeholders in the advertising sub-sector raised concerns over the lack of training in advertising. Since specialised advertising courses were mainly offered by private colleges, there was very little access for young black people without financial backing. Compounding this problem was the lack of awareness of advertising as a career amongst township youth and the immense pressures of the industry for new entrants. Mentoring may be a solution to help induct young people into the industry, but it is not normally accounted for as 'billable-time'.

Collins and Snowball (2014) point to lack of government support for training initiatives in film, which together with the short-term, precarious nature of employment contracts, means that only children from wealthy families are likely to choose film as a career. The short-term project-based nature of the industry was a disincentive for firms to invest in training since staff might leave at the end of a short contract. The establishment of new, small-scale firms and cooperatives in film production in rural areas and townships has opened up opportunities for skills development especially where they have been able to access DTI funding. Stakeholders in the sector have noted that many training courses at film schools were not SAQA accredited.

Enrolments in MICT SETA qualifications

Over the past 5 years, over 65 000 learners enrolled for an NQF qualification registered with the MICT SETA. Figure 18 shows that enrolment in learnerships and skills programmes increased from 10 159 learners in 2014 to 17 974 learners in 2017, before declining slightly to 16 314 learners in 2018.

Figure 18: Learnerships & Skills Programmes Enrolment 2014-2018

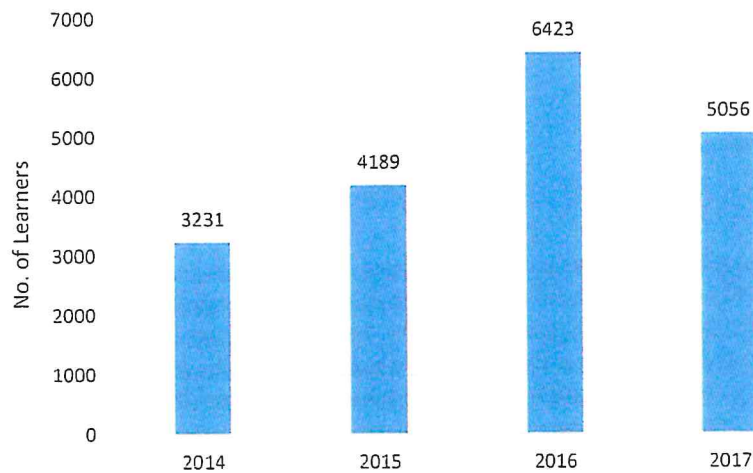


Source: MICT SETA OGS, 2018

Completions

Overall, during the period 2014 to 2017, 18 899 learners completed learnerships and skills programmes. Completions saw an increase between 2014 and 2016, rising from 3 231 to 6 423 completions respectively, before declining in 2017 to 5 056.

Figure 19: Learnerships & Skills Programmes Completions 2014-2017



Source: MICT SETA OGS, 2018

Equity Demographics

The NSDS prescribes equity targets. The MICT SETA programmes appear to have consistently managed to attract black women into the sector. Stakeholders in the sector confirmed that there was a rise in the number of women in learnerships, especially in ICT technical areas which were traditionally dominated by men. However, it was noted that there were very few black candidates being trained as 'creatives' in both the Advertising and Film and Electronic Media sub-sectors.

3.4.2 QCTO qualifications

Task teams have been set up to provide input to the occupational qualifications being developed by the QCTO. A number of consultative road shows were held to explain the process followed to the adoption of a QCTO qualification. To date, 12 qualifications are under development. These are (1) Computer Help Desk Operator: OFO 351201; (2) Software Tester: OFO 251901; (3) Network Engineer: OFO 252301; (4) ICT Security Specialist: OFO 252901; (5) Telecommunication Cable Joiner: OFO 672202; (6) Electronics and Telecommunications Trades Assistant: OFO 862922; (7) Telecommunication Technical Officer or Technologist: OFO 352201; (8) Film and Television Production Manager: OFO 265409; (9) Software developer: OFO 2017- 251201; (10) Network Engineer: OFO 2017-215303; (11) Multi-Media Specialist: OFO 2017-251301; and (12) Computer Network Technician: OFO 2017-351301.

3.4.3 Higher Education

In 2015, there were just over 41,200 enrolled in HEI courses related to Computer and Information Sciences and almost 21,000 enrolled in communication, journalism and related studies (HEMIS, 2016). While the numbers progressing through tertiary degrees are sufficient, there is some concern that universities are too focused on providing theoretical knowledge, but coming up short on imparting practical ICT skills (Doyle, 2014b). Table 11 shows that there has continued to be an increase in students enrolling in Science, Engineering and Technology programmes at higher education institutions. In terms of total enrolments there was a 5% increase between 2013 and 2017; however, the DHET had set a target of 1,087,281 enrolments by 2019. Policy statements indicate that student enrolments at universities need to increase by at least 70% by 2030 for enrolments to increase to 1.62 million.

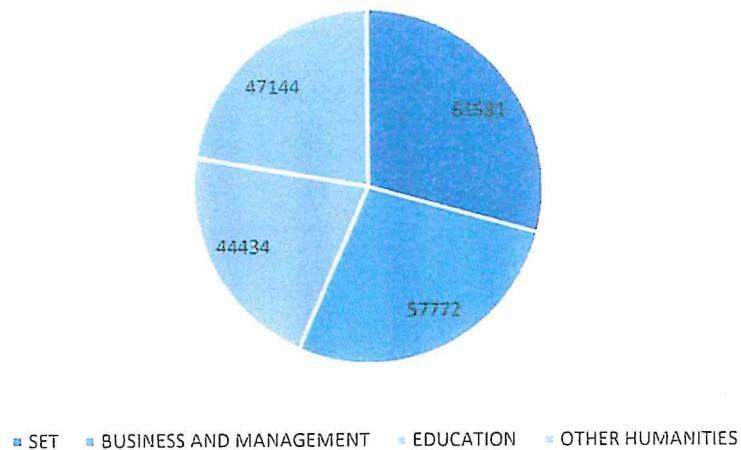
Table 11: Enrolments in public HEIs by major field of study

	2013	2014	2015	2016	2017
Science, Engineering and Technology	283,622	287,221	294,935	295,383	310,115
Business and management	279,954	272,409	273,828	264,934	278,930
Education	172,991	166,099	170,550	176,986	195,113
Other humanities	247,131	243,426	245,899	238,535	252,826
Total	983,698	969,155	985,212	975,838	1,036,984

Source, DHET HEMIS, 2017

Figure 20 presents the graduations across major fields of study in all public higher education institutions in 2017. The number of people completing their qualifications as compared the number of enrolments remains a challenge in the country. Newly graduated developers are said to often be unable to match the correct theoretical paradigm with the problem needing to be solved and yet are expected to do so without the guidance of an experienced mentor (Doyle, 2014d). Industry experts said internships were ideal for providing practical experience for university graduates.

Figure 20: Graduations for 2017 in public HEIs by major field of study



Source: DHET HEMIS, 2017

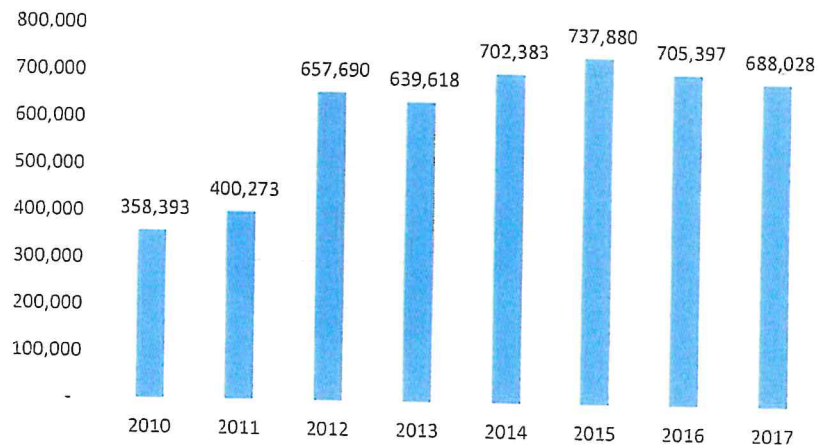
Increasingly, universities have been providing innovative opportunities for students to experiment with developing ICT applications. The University of the Witwatersrand and Tshwane University of Technology, for example, have built “innovation hubs” which are creative spaces where people can meet, brainstorm and work on projects. The hub is also an environment in which skills are learnt and exchanged across a number of disciplines. The MICT SETA has been involved in supporting these initiatives.

According to DHET’s report “Skills for and through SIPS”, which assessed skills development in relation to government’s Strategic Integrated Projects, university curricula have generally not kept pace with the rate of change of technology. The report argues for “curricula to be more relevant and academics to have more practical experience to ensure that graduates were prepared for the workplace. They also suggested that substantially more mentoring, coaching, and open learning should be available to support graduates in the workplace” (Economic Development Department and Department of Higher Education and Training, 2014). Moreover, in the case of Data Scientists: “There are very few South African lecturers with expertise in this field. Currently most are foreign and need to be harnessed to develop a new breed of local data scientists for this expanding field” (2014).

3.4.4 TVET Colleges

The Department of Higher Education and Training has been promoting TVET colleges as learning institutions of choice. The White Paper of Post School Education and Training is aspiring for a quality post school education which includes expanded access to public TVET colleges. Headcount enrolment in TVET colleges increased from 358393 in 2010 to 705397 in 2016 (Figure 21). Even with this significant increase in headcount enrolment, the perception within industry is that public TVET colleges are not producing outputs (HRDC, 2015).

Figure 21: Number of students enrolled in TVET colleges, 2010 to 2017



Source: DHET, Statistics on Post-School Education and Training in South Africa: 2017, 2019

Qualifications at TVET colleges do not go beyond NQF Level 4, so there is no real articulation with higher education. Stakeholders in the sector confirmed that they do not in the main recruit interns from TVET colleges. Some of the reasons advanced are that such graduates were not in a position to pass international exams.

3.4.5 Vendor Programmes

The significant demand for improving or adding to ICT skills is through vendor programmes. These are usually short courses offered by software and hardware companies and designed to introduce new technologies to those already in the industry. However, Vendor programmes can be longer courses that include generic skills and may be offered by TVET colleges and HEIs.

Vendor courses have the benefit of keeping up to date with rapidly changing technology. But for the same reason, these courses can quickly become obsolete if the product turns out to have a short shelf-life. There is also a concern that training content is focused on the vendor's products and therefore not generic enough to educate on the underlying principles. Consequently, there has been an apparent increase in the demand for customised training solutions rather than more comprehensive off-the-shelf training that covers a broader range of technology solutions. At the same time, stakeholders in the sector reported that employers increasingly want employees to cross-certify with multiple vendors. Having multiple skills is lately becoming an inherent job requirement.

To respond to the persistent demands for vendor certificates, the MICT SETA is mapping these programmes (such as Microsoft, CompTIA N+ and A+, and Cisco certificates) against existing NQF qualifications.

Assessment of education and training

This year (2019) the SETA conducted an impact study aimed at assessing the success of the SETA's learning programmes. In addition to literature review, the study included consultations with learners, training providers and employers.

The study revealed that 46% of learners are employed after completing programmes, 68% of which are employed as a result of the programmes. However, 41% of learners report that their current

occupations do not match their qualifications, suggesting a misalignment between skills supply and demand.

The benefits that emanate from the programmes relate mostly to gaining particular skills (as well exemplified in vendor specific short programmes) and work exposure. In particular, the following were reported to have been realised to varying extents:

- Obtaining a relevant qualification: achieved (71%)
- Adequate training: partially achieved (66%)
- Obtaining adequate work experience: partially achieved (63%)
- Increased earning capacity for learners: partially achieved (59%)
- Increased career advancement for learners: partially achieved (63%)
- Sustained employment for learners: partially achieved (55%)

Employers reported the following outcomes:

- More targeted programmes: partially achieved (64%)
- Reduced middle-level skills gaps in the MICT Sector: partially achieved (59%)
- Improved productivity: partially achieved (60%)
- Increased ability of the work force to adjust to changes in the labour market: partially achieved (57%)
- Greater employer willingness to take on learners in future: partially achieved (65%)
- An increase in potential entrants to the MICT labour market with job ready skills and competence: partially achieved (63%)
- Increased employment in alignment to the transformation imperatives: partially achieved (60%)

As the above-mentioned benefits and outcomes show, programmes performed fairly well, although there is room for improvement. In order to attract and retain learners, stakeholders stress the importance of keeping programmes relevant and up to date, with special regards to 4IR, and directing resources towards appropriate occupations and qualifications, to which the SETA is responding to with its revised Sectoral Priority Occupations and the SSP.

Overall then it appears that the learning interventions that are undertaken in the sector have some relevance to the operations of the employers and are beneficial to the workers.

Qualification and Occupation Mapping

In 2016, the MICT SETA initiated a process of mapping key occupations in the sector to various qualifications and learning pathways to understand how employers were replenishing the skills sets in their industries. The stakeholders across various MICT sub-sectors engaged with the MICT SETA to inform the most appropriate learning programmes for addressing the key occupations in the sector. Table 12 below provides a list of possible qualifications mapped to occupations in the sector. From these mapping exercises the MICT SETA gained intelligence and insight from the sector in terms of how to address key occupations in the sector. It is anticipated that the Sectoral Priority Occupations interventions identified will help address the skills shortages in the sector, as well as enable the employers in the sector to bridge the gap between skills demand and supply.

Table 12: Possible Qualifications mapped to Occupations

Qualification	Career Prospects/Job Roles
BSc or Nat.Dipl majoring in: <ul style="list-style-type: none"> - Business Computing - Computer Engineering - Computer Games Development - Computer Science/Studies 	<ul style="list-style-type: none"> - ICT Systems Analyst - Web Technician - Systems Administrator - Computer Network Technician - Software developer
B.Arts/Learnerships majoring in: <ul style="list-style-type: none"> - Drama - Film and Television - Journalism 	<ul style="list-style-type: none"> - Actor - Scriptwriter - Director - Multimedia Specialist - Film and Video Editor
B.Com or Nat.Dipl majoring in: <ul style="list-style-type: none"> - IT Management - Applied Information Systems 	<ul style="list-style-type: none"> - Business Intelligence Analyst - Business Analyst - Chief Information Officer - IT Project Manager - IT Manager
B.Engineering/Nat.Dipl/Learnership majoring in: <ul style="list-style-type: none"> - Electronic Engineering - Computer Engineering 	<ul style="list-style-type: none"> - Computer Network Technician - Developer Programmer - Software Developer - Telecommunications Technologist - Electronic Engineering Technician
BA Honours in: <ul style="list-style-type: none"> - Film and Documentaries - Media and communication - Development and communication 	<ul style="list-style-type: none"> - Editor - Director - Journalist - Content producer - Communication specialist
B.Com/Nat.Dipl/Learnership majoring in: <ul style="list-style-type: none"> - Strategic Brand Management - BA Creative Brand Communications 	<ul style="list-style-type: none"> - User Experience Designer - Brand Strategist - Art Director - Brand Auditor - Digital Marketing Strategist
Diploma/Learnerships/Higher Certificates in: <ul style="list-style-type: none"> - Marketing & Advertising Communications - Art Direction Diploma - Graphic Design - Copywriting 	<ul style="list-style-type: none"> - Creative Director - Campaign & Coordinator - Graphic Designer - Social Media Coordinator - Digital marketer
Diploma/Learnerships/Higher Certificates in: <ul style="list-style-type: none"> - Electronic Engineering - CCNA 1 - 4 	<ul style="list-style-type: none"> - Radio & TV Technician - Telecommunications Technician - Computer Network Technician - Systems Administrator - Electronic Engineering Technician

3.5 Sectoral Priority Occupations

The compilation of the Sectoral Priority Occupations (SPO) list follows a process that combines both analytical and qualitative inputs. This involves analysis of WSPs, employer surveys, desk-based research as well as validation through focus groups with stakeholders in the sector. In addition, interviews are conducted with a number of stakeholders, which include industry bodies, government stakeholders, sector training bodies, employer bodies, trade unions and other key informants. Interviews focused on developments in the sector, emerging trends as well as future skills needs.

Given the dynamic nature of the MICT sector, these interviews helped to identify new trends regarding new occupations as well as future skills needs in the economy.

With regard to the quantitative analysis, occupations and specialisations flagged as hard to fill in WSP/ATR submissions were tested for prioritisation against systemic and volumetric considerations via surveys, interviews and focus groups. Appropriate interventions were then determined per occupation based on prior and planned skills development for those occupations, adjusted based on SETA experience. The quantity to be supported by the SETA was determined based on previously planned APP targets, per type of intervention, and distributed across the occupations based on extent of need.

Given the central role that the MICT Sector will play as the Fourth Industrial Revolution unfolds, determination of hard to fill vacancies and the SPO list took this important skills requirement into account. Initial interviews sought to unpack the business and skills fundamentals underpinning 4IR. These insights were then incorporated into surveys that validated the contribution of specific occupations to 4IR. This perspective was then superimposed upon the number of hard to fill vacancies for occupations to determine the top 10 occupations for the SPO list. Following the production of the draft SPO list, input is incorporated from deliberations at Executive Committee and Board level, and the final SPO list is signed off by the MICT SETA Board.

The limitation of the data presented is that even though it takes into account other sources such as employer surveys and interviews, the input data from employer WSPs is not without challenges as often employers highlight occupations in which they require funding for learning programmes. Stakeholders who formed part of the validation processes reflected that OFO codes were vague and confusing with several overlaps in occupational descriptions. In some instances, OFO codes did not exist for their desired occupations. Validation processes were in the form of focus groups and interviews for all the sub-sectors.

The SETA is, however, confident that based on the rigorous, practical and balanced approach adopted for the determination of the MICT sector SPO list that the identified priority occupations and interventions will help underpin the skills development planning and implementation required to address skills issues and opportunities in the sector; including critical areas such as 4IR. The SPO list follows in the table below.

Table 13: Top 10 Sectoral Priority Occupations List for the MICT Sector

SETA Name	Period	Occupation Code	Occupation	Specialisation/ Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned	Quantity Needed	Quantity to be supported by the SETA
MICT SETA	2020/21	2017-251201	Software Developer	<ul style="list-style-type: none"> • Software Designer • Information Architect Software • Software Engineer • ICT Risk Specialist • Software Architect 	Bursary (diploma)	6	Y	2434	2404
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
					Internship	6	N		
					Internship	7	N		
					Internship	8	N		
					Learnership	5	Y		
					Skills Programme	5	Y		
					Professional Qualification	5	N		
					Professional Qualification	6	N		
Professional Qualification	7	N							
Professional Qualification	8	N							
MICT SETA	2020/21	2017-351301	Computer Network Technician	<ul style="list-style-type: none"> • Network Support Technician 	Bursary (diploma)	6	Y	1948	2000
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
					Bursary (degree)	9	Y		
					Learnership	4	Y		
					Learnership	5	Y		
					Skills Programme	4	Y		
					Skills Programme	5	Y		
					Internship	6	N		
					Internship	7	N		
Internship	8	N							

SETA Name	Period	Occupation Code	Occupation	Specialisation/ Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned	Quantity Needed	Quantity to be supported by the SETA
MICT SETA	2020/21	2017-252301	Computer Network and Systems Engineer	<ul style="list-style-type: none"> • Computer Systems/Service Engineer • Systems Engineer • Computer Systems Integrator • Computer Network Engineer • Network Engineer • Communications Analyst (Computers) • Network Programmer/Analyst • Network Support Engineer • Systems Integrator 	Professional Qualification	5	N	731	1319
					Professional Qualification	6	N		
					Professional Qualification	7	N		
					Professional Qualification	8	N		
					Bursary (diploma)	6	Y		
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
					Bursary (degree)	9	Y		
					Bursary (degree)	10	Y		
					Learnership	5	Y		
Skills Programme	5	Y							
Internship	6	N							
Internship	7	N							
Internship	8	N							
Professional Qualification	5	N							
Professional Qualification	6	N							
Professional Qualification	7	N							
Professional Qualification	8	N							
Bursary (diploma)	6	Y							
Bursary (degree)	7	Y							
Bursary (degree)	8	Y							
Internship	6	N							
MICT SETA	2020/21	2017-252901	ICT Security Specialist	<ul style="list-style-type: none"> • ICT Security Architect • Security Administrator • Internet Security Architect/Engineer/Consultant 	Bursary (diploma)	6	Y	713	835
				Bursary (degree)	7	Y			
				Bursary (degree)	8	Y			
				Internship	6	N			

SETA Name	Period	Occupation Code	Occupation	Specialisation/ Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned	Quantity Needed	Quantity to be supported by the SETA
MICT SETA	2020/21	2017-251101	ICT Systems Analyst	<ul style="list-style-type: none"> Information Technology Security Manager Database Security Expert ICT Systems Consultant ICT Systems Advisor Systems Programmer ICT Systems Strategist ICT Systems Specialist Internet Consultant/Specialist-Computer Analyst ICT Systems Coordinator ICT Systems Contractor ICT Business Systems Analyst ICT Systems Architect ICT System Designer 	Internship	7	N	676	898
					Internship	8	N		
					Professional Qualification	5	N		
					Professional Qualification	6	N		
					Professional Qualification	7	N		
					Professional Qualification	8	N		
					Work integrated Learning	4	Y		
					Work integrated Learning	5	Y		
					Bursary (diploma)	6	Y		
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
					Internship	6	N		
					Internship	7	N		
					Internship	8	N		
					Professional Qualification	5	N		
					Professional Qualification	6	N		
					Professional Qualification	7	N		
Professional Qualification	8	N							
Work integrated Learning	4	Y							

SETA Name	Period	Occupation Code	Occupation	Specialisation/ Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned	Quantity Needed	Quantity to be supported by the SETA
MICT SETA	2020/21	2017-251202	Programmer Analyst	<ul style="list-style-type: none"> Architect (Applications/Call Centre/Computing/Desktop/E-commerce) Computing (Development/Field) Engineer Software Configuration/Licensing Specialist Designer (Hardware - Digital/Software) Cross Enterprise Integrator Architect (Enterprise/Internet/IT/Network / Software/Unix/Web) Engineer (Applications/Content /IT/ Software/Systems/WAN) Database Designer 	Work integrated Learning	5	Y		
					Bursary (diploma)	6	Y		
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
					Bursary (degree)	9	Y		
					Internship	6	N		
					Internship	7	N		
					Internship	8	N		
					Professional Qualification	5	N		
					Professional Qualification	6	N		466
					Professional Qualification	7	N		
					Professional Qualification	8	N		
					Work integrated Learning	4	Y		
Work integrated Learning	5	Y							
MICT SETA	2020/21	2017-242101	Management Consultant (Business Analyst)	<ul style="list-style-type: none"> Business Analyst Technology Development Coordinator Small Business Consultant/Mentor 	Bursary (diploma)	6	Y		
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
					Bursary (degree)	9	Y		
					Bursary (degree)	10	Y		454
					Professional Qualification	5	N		
					Professional Qualification	6	N		
					Professional Qualification	5	N		
					Professional Qualification	6	N		
					Professional Qualification	6	N		359

SETA Name	Period	Occupation Code	Occupation	Specialisation/ Alternative Title	Intervention Planned by the SETA	INQF Level	INQF Aligned	Quantity Needed	Quantity to be supported by the SETA
MICT SETA	2020/21	2017-243101	Advertising Specialist	<ul style="list-style-type: none"> Advertising Coordinator/Specialist Advertising Account Manager Creative Director (Advertising) Advertising Agent Representative Advertising Account Executive 	Professional Qualification	7	N	224	369
					Professional Qualification	8	N		
					Work integrated Learning	4	Y		
					Work integrated Learning	5	Y		
					Bursary (diploma)	6	Y		
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
					Internship	6	N		
					Internship	7	N		
					Internship	8	N		
					Skills Programme	4	Y		
Skills Programme	5	Y							
Learnership	4	Y							
Learnership	5	Y							
Professional Qualification	5	N							
Professional Qualification	6	N							
Professional Qualification	7	N							
Professional Qualification	8	N							
MICT SETA	2020/21	2017-215303	Telecommunications Network Engineer	<ul style="list-style-type: none"> Telecommunications Network Planner Telecommunications Consultant Telecommunications Specialist 	Bursary (diploma)	6	Y	164	385
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
					Internship	6	N		

SETA Name	Period	Occupation Code	Occupation	Specialisation/ Alternative Title	Intervention Planned by the SETA	NQF Level	NQF Aligned	Quantity Needed	Quantity to be supported by the SETA
MICT SETA	2020/21	2017-252101	Database Designers and Administrator	<ul style="list-style-type: none"> • Communications Specialist (ICT) • Communications Consultant 	Internship	7	N	114	238
					Internship	8	N		
					Learnership	5	Y		
					Professional Qualification	5	N		
					Professional Qualification	6	N		
					Professional Qualification	7	N		
					Professional Qualification	8	N		
					Bursary (diploma)	6	Y		
					Bursary (degree)	7	Y		
					Bursary (degree)	8	Y		
Bursary (degree)	9	Y							

3.6 Conclusion

The MICT sector has been under cost-saving measures since the economic downturn, and that has in turn increased demands on employees to be multi-skilled across a number of technologies. Convergence has added to that trend. So, while there are employment opportunities in the sector, these tend to be for high-skilled professionals. Informants in the ICT subsector reported a larger focus on outsourcing and contract work. This is in contrast to the advertising subsector, which is reportedly losing talent to large companies with expanding marketing departments and the resources to insource.

Matching demand for skilled people with supply is difficult in a sector that is changing so quickly. Long-term predictions on occupations with hard to fill vacancies are not that reliable on the shifting sands of technology, and as a result there has been a call to speed up accreditation processes and recognise vendor programmes on the NQF.

There continues to be an uptake of MICT qualifications. In 2018, enrolment exceeded 16 000 learners. However, it is a concern that only 18 of the 40 qualifications listed by the MICT SETA on the NQF are the main source of high-skilled MICT graduates and, according to some stakeholders in the sector, the main supply of internship candidates. Despite historical bias towards private colleges, the placement of public TVET graduates is gradually increasing across the MICT sub-sectors.

Chapter 4: SETA Partnerships

4.1 Introduction

The Skills Development ACT of 1998 encourages SETAs as agents of skills development to establish partnerships between the public and private sectors. The MICT SETA views partnerships as a critical mechanism that safeguards the delivery of its skills development mandate. MICT SETA partnerships are thus intended to promote and sustain interaction between industry and training institutions to ensure that curricula reflect the changing needs of a dynamic and ever-changing industry. Data presented in this section is sourced from the commitment registers. This chapter presents partnerships that are both existing and new in the MICT SETA. For the 2018/19 financial year, the MICT SETA funded: 443 Bursaries, 1567 Internships, 3593 learnerships, and 3971 skills programmes. Below is a list of existing partnerships within the MICT SETA:

4.2 An analysis of existing SETA partnerships

The MICT SETA entered into partnerships with various institutions for the purposes of advancing sector development. The partnerships entered into are structured into the following typologies:

- Partnership with TVET colleges
- Partnership with Universities
- Partnerships for Special Projects
- Partnerships with Industry Vendors
- Partnership with SMMEs
- Partnerships with Research Institutions

The table below illustrates existing partnerships with TVETs, and programmes supported by the MICT SETA.

Table 14: Partnership with TVET Colleges

Name of TVET	Nature of Partnership	Start & End Dates	Objectives of Partnership	Value of Partnership
False Bay	Learnership	2018/01/08–2019/04/30	The purpose of the partnerships is to ensure that there is equitable participation of people from different backgrounds, also ensuring that there is a balance of access to education and training that meets the needs of the labour market. The MICT SETA recognizes TVET colleges need to respond to the labour market and to win the confidence of the industry.	The value lies with addressing broad sectoral issues that stimulate opportunities for job creation and poverty reduction (Digital Installer Programme), Lecture development, improve the labour market outcome at both regional and national level, Focus is on peri-urban and rural reach.
Flavius Mareka	Learnership	2018/11/01–2020/01/31		
Maluti	Learnership	2018/11/01–2020/01/31		
Majuba	Skills Programme	2019/02/04–2019/07/31		
North link	Work Integrated Learning (WIL)	2018/10/08–2019/12/31	The purpose of this partnership is to provide practical work experience towards completion of TVET qualifications.	The value of this partnership lies with ensuring that students develop the ability to integrate their learning through a combination of academic and work-related activities. With the emergence of 4IR this is a good strategy to get learners exposed to practical learning and develop products.

Source: MICT SETA Commitment register, 2018/19

The white paper for post-school education and training states that TVETs need to enrol 700,000 to 2.5 million by 2030. The MICT SETA has found that TVETs are not well placed to identify the opportunities for partnership formation and, even where they do, they may lack the resources or skills to facilitate the actual development of the partnership. The MICT SETA has thus taken the initiative to develop

partnerships with TVET colleges. MICT SETA views the partnership from a perspective that skills development interventions cannot be viewed from a one-sided perspective, but also on how practical work can be funded. It is in this case that the MICT SETA invests on MICT related qualifications in TVETs and also funds internships, learnerships and skills programmes to have a balance of both theory and practical work. Below are some of the existing partnerships with universities.

Table 15: Partnership with Universities (2018/19)

Name of University	Nature of Partnership	Start & End Dates	Objectives of Partnership	Value of Partnership
Nelson Mandela Metropolitan University	Bursary	15/01/2019 – 31/12//2019	The objectives of the partnerships with universities is to ensure that there is an equitable participation of people from different backgrounds, at the same time ensuring that there is a balance of access to education and training that meets the needs of the labour market.	These partnerships will help improve the supply of skilled people in the sector and contribute to national policy priorities and outcomes. Moreover, such partnerships will help learners from previously disadvantaged backgrounds to embark on high level qualifications
University of Johannesburg	Bursary	15/01/2019 – 31/12//2019		
Walter Sisulu University	Bursary	15/01/2019 – 31/12//2019		
Cape Peninsula University of Technology	Bursary	15/01/2019 – 31/12//2019		
Mangosuthu University of Technology	Bursary	15/01/2019 – 31/12//2019		
North West University	Bursary	15/01/2019 – 31/12//2019		
Rhodes University	Bursary	15/01/2019 – 31/12//2019		
University of Cape Town	Bursary	15/01/2019 – 31/12//2019		
University of Pretoria	Bursary	15/01/2019 – 31/12//2019		
University of Free State	Bursary	15/01/2019 – 31/12//2019		
University of Venda	Bursary	15/01/2019 – 31/12//2019		
Durban University of Technology	Skills Programme	2018/03/12 - 2019/07/31		

Source: MICT SETA Commitment register, 2018/19

Key developmental and transformational imperatives remain a priority to any skills development intervention by the SETA. In the previous year the MICT SETA had established partnerships with universities to encourage learners from previously disadvantaged backgrounds to continue studying towards their honours, masters and PHD qualifications. With such partnerships in the previous years the MICT has seen this as a good investment to skills development at a national level, especially when universities are considered important players to the national economy in terms of skills development.

4.2.1 Partnerships for Special Priorities

The table below highlights on some of the “Special projects Partnerships”.

Table 16: Special Project Partnerships

Industry Vendor	Nature of Partnership	Start & End Dates	Objectives of Partnership	Value of Partnership
False Bay	Learnership	2018/01/08 – 2019/04/30	The objective of this partnership is to ensure that beneficiaries gather international work experience to facilitate innovation and international competitiveness, also	This partnership has a potential value to better prepare student for the 4IR, by exposing them to opportunities relating to skills development at both national and international level.

Industry Vendor	Nature of Partnership	Start & End Dates	Objectives of Partnership	Value of Partnership
			ensuring work readiness of these students.	
Mzansi Scuba Diving Academy	Learnership	2018/11/01 – 2020/01/31	The SETA funds an 'Underwater Photography Programme' recruiting and training candidates from various townships across South Africa. The aim is to enable individuals to be able to track sardine migration underwater using photography, this is a skill that is not readily available to the youth from disadvantaged communities.	The value of this partnership is to Address a gap that exist in underwater photography, especially for youth from disadvantaged communities. This partnership positively impacts other sectors such as the maritime sector which falls under the transport sector.

Furthermore, The MICT SETA encourages special projects as they promote skills development, employability and sustainability. These special projects are also important for developing the SMME sector. Through these projects endorsed by the SETA, mentorship is key and they often project skills development beyond to just implementation. For these project implementers, what remains key is for learners to be given the opportunities of developing skills that can help them gain employment or become employers' themselves. The table below highlights partnerships with industry vendors.

Table 17: Partnerships with Industry Vendors (2018/19)

Industry Vendor	Nature of Partnership	Start & End Dates	Objectives of Partnership	Value of Partnership
QCTO	Occupational qualifications development	01/04/2012 -	The objective of the partnership is to develop occupational qualifications.	The value of the partnership lies in the development of occupational qualifications to ensure that the system is more responsive to labour-market skills needs.
CompTIA	Alignment to US	17/04/2018 – 31/03/2020	The objective of the partnership is to develop occupational qualifications.	This partnership is important as it recognizes that there is a need to assist learners in getting their achievements listed on the National Learner Records Database (NLRD).
Microsoft	Alignment to US	15/02/2019 – 31/03/202		

Since the emergence of the 4IR, the MICT Sector is witnessing a major shift in the higher education landscape. Thus, the MICT SETA understands that there is high importance to partner with industry vendors which bring expertise. By Partnering with a vendor, the MICT SETA has the opportunity to develop a relationship that can go beyond the initial implementation stage, which is why it is important for the SETA to partner with them. The table below highlights partnerships with research institutions.

Table 18: Partnerships with Research Institutions (2018/19)

Research Institution	Nature of Partnership	Start & End Dates	Objectives of Partnership	Value of Partnership
Redflank	Tracer/Impact Study	2018/01/08– 2019/04/30	The objective is to increase the SETA's research capacity in measuring the impact of funded learning programmes, ensuring relevance and to find best practices.	This partnership will help the SETA to determine if the programmes implemented are producing the intended results, if not the SETA learns from past implementations and comes up mitigation strategies.

Research Institution	Nature of Partnership	Start & End Dates	Objectives of Partnership	Value of Partnership
Redflank	Development of the SETA's Sector Skills Plan (SSP).	2019/05/01–2020	The objective is to increase the SETA's research capacity in developing the SSP.	This partnership will help the SETA to have a more nuanced, grounded long-range view on how the MICT sector is changing.

In this current update the SETA has partnered with Redflank Solutions to help in the SSP update and to conduct Tracer/Impact Study. This partnership will provide a good critical relationship in the way research is conducted and it will help the SETA to have a more nuanced, grounded long-range view on how the MICT sector is changing.

Partnerships that are working successfully

Key developmental and transformational imperatives remain a priority to any skills development intervention by the SETA. Under this flagship the MICT SETA has covered the tuition and living allowances of eight students to ensure participation by beneficiaries from rural and semi-urban areas. Rural partnerships with universities such as the University of Venda, University of the Free State are among those that are working well. The SETA extensively promotes and support skills development in rural areas. The delivery of skills development in rural areas was implemented through the mobilization of stakeholders within the MICT sector to create an enabling environment in rural areas for the provision of skills development initiatives.

The model that the SETA uses as a winning formula lies in close partnerships with its stakeholders, with communication and engagements through workshops, roadshows and seminars being key. The SETA as a skills development facilitator understands that staying in close relationship with its stakeholders is one way in which skills gaps can be addressed. Sustainable partnerships are important and hence communication and engagements serve as important tools for transparency to foster a good working relationship

Partnerships that are not working well

While there has been significant progress in the aforementioned partnerships, there are challenges that are documented by the SETA to allow a culture of reflective thinking. Across the partnerships, there are challenges experienced in terms of the actual implementation of the respective programmes. TVET colleges at times lack delivery capacity and that impacts negatively on the timeous implementation of programmes, this is mostly the case with TVET colleges in rural areas as they are disadvantaged in terms of skilled lecturers, infrastructure and alternative centres of excellence which could play a role in their training implementation. With regards industry and Universities, the challenge is with their legal departments' acquainting themselves with the SLA or even disagreeing, resulting in delays in programmes implementation. Partnership challenges with employers are often rooted in them delegating the training to training providers that are not able to deliver on the mandate of the SETA.

To mitigate partnerships that are not working will depend entirely on coming up with processes which will be inclusive at large, i.e. to capacitate stakeholders that lack the experience to handle contracts and conduct analysis to ascertain if the stakeholder has the capacity to implement the programme or Project. The SETA will also look into partnering with centres of excellence where there is no provision to support TVET colleges.

4.3 Planned Partnerships

The following table highlights the SETA's planned partnerships.

Table 19: MICT SETA's Planned Partnerships

Industry Partner	Nature of Partnership	Start & End Dates	Objectives of Partnership	Necessity and Value of Partnership
University of Johannesburg	Professional TVET lecturer development programme on the fourth industrial revolution	2019/05/18 – 2019/12/18	The aim of the partnership is to upskill lecturers in TVET colleges to align their teaching to elements of the Fourth Industrial Revolution (4IR). The partnership consists of blended online and face to face short learning programmes which also consist of short learning programmes. Core to this partnership: Basics of Data, Programming and Applications, Big data analytics and applications, Virtual Reality (VR), Digital advertising.	The value of this partnership promises to bring increased access to occupationally directed programmes, increased and improved workplace capacity in TVET colleges to produce relevantly skilled graduates and Increased support of SMEs within the MICT sector.
Department of Communications	Short Programme in 4IR	2019/06/24 - 2020/05/29	The aim is to create data scientists to respond to the demand in the sector. With the emergence of 4IR, training people in data analytics will help in bridging the gap of finding people with the experience and skills in statistical, network, path, and big data methodologies.	The value in this partnership lies in creating access to opportunities that are far off for individuals coming from poor backgrounds. Qualifications in this field are expensive, thus, such partnership provides a solution to bridge the gap of accessibility and to meeting the demands of 4IR.

The SETA's most successful partnership approach/model has been partnering with training providers to create and deliver learning programmes that increase access to opportunities. Emulating this model, the planned partnerships are aimed at developing programmes in emerging fields that improve access to occupationally directed programmes, especially for rural and indigent learners. Developing relevant and high-quality skills and competencies is thus the key foundation that the MICT SETA bases its partnership on in terms of skills development at a local, regional and at a national level. These planned partnerships respond directly to the gaps that exist in the sector and they serve as responsive mechanisms to 4IR. The SETA's model is responsive in a way that it captures the value and importance of each partnership. Special projects as seen above in table 19 also remain key to bridging the gap where the SETA might not be doing enough. The SETA endeavours to establish future research chair partnerships with universities to support honours, masters and PHD students in research topics related to the MICT SETA scope, this will enrich research in the field.

4.4 Conclusion

The partnerships highlighted above were successful in advancing skills development outside operational targets of the MICT SETA. Special projects provide empirical evidence beyond the implementation of planned targets. Hence, priority was given to partnerships that promoted key transformational imperatives such as race, women and people with disabilities. Through these partnerships the SETA continues to increase the participation of previously disadvantaged people, especially in rural areas. The partnerships highlighted above show that the MICT SETA is a reflective organization in that it has learnt to prioritize quantifiable public goals and proper engagement with its stakeholders, thus ensuring transparency and long-term planning.

Chapter 5: SETA Monitoring and Evaluation

5.1 Introduction

Organizations such as SETAs have numerous skills development programmes or projects and huge amounts of assets are put into these interventions. It is important to get value for money and concurrently reach the desired impact. In ensuring this happens, there has to be a continuous retrospection of the designs and relevance of the programmes, processes, implementation, and impact. Thus, Monitoring and Evaluation become important in this case. This chapter reflects on the SETA's strategic priorities based on the previous financial year. It captures information gathered from an M&E workshop with Senior MICT SETA managers from the three core divisions, namely: Sector Skills Planning (SSP), Learning Programmes (LPD), and the Education and Training Quality Assurance (ETQA) division. It discusses the MICT SETA's approach to monitoring and evaluation, examines the extent to which the SETA has addressed its strategic priorities. This section also discusses the mechanisms in place, and it highlights which ones should be employed to address priorities that were not achieved in the previous financial year.

5.2 Sector Skills Planning Reflections

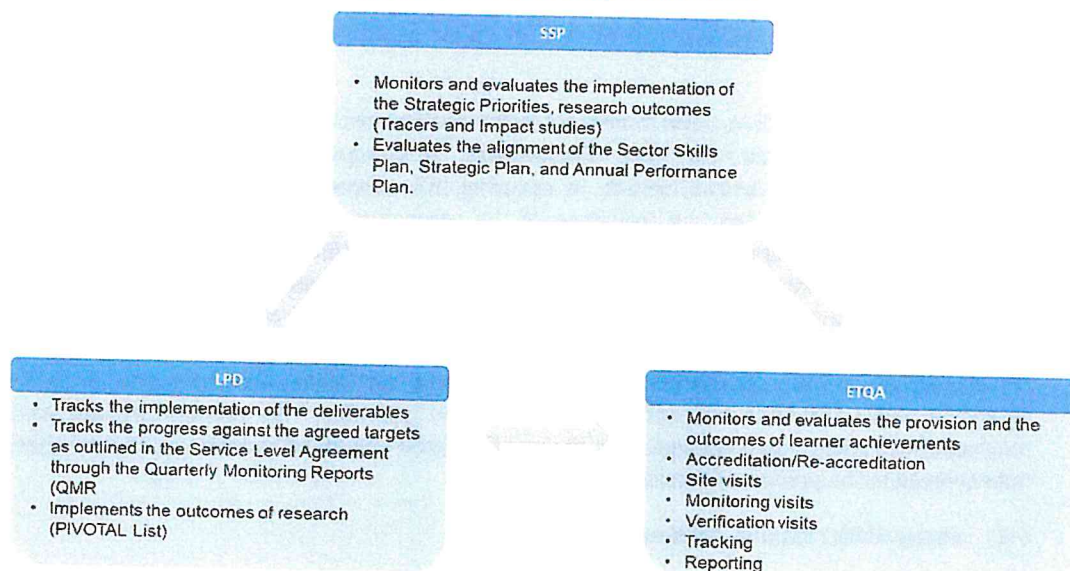
5.2.1 SETA's Approach to Monitoring and Evaluation

For the purpose of this document, Monitoring can be understood as a routine process of collecting data to provide information against set targets. It tracks progress on programme implementation; it is routine and ongoing in nature, it has the advantage of providing early indications of progress, achievements, and challenges in the programmes implementation (Gage and Dunn 2009, Frankel and Gage 2007).

Moreover, Evaluation, in this case, should be understood as a systematic assessment of an activity, programme or project, strategy, policy, operational area or institution's performance. It focuses on expected and achieved accomplishments, examining the results chain (inputs, activities, outputs, outcomes, and impacts), processes, contextual factors, and causality, in order to understand achievements or the lack of achievements (Gage and Dunn 2009, Frankel and Gage 2007).

The MICT SETA has three core divisions, namely, Sector Skills Planning (SSP), Learning Programmes (LPD), and the Education and Training Quality Assurance (ETQA) division. It is worth noting that the SETA does not have an independent M&E division. Within the two core divisions (LPD and ETQA), M&E is performed with a minimal 'E', meaning that the evaluation is conducted only at a process level. The full concept of M&E as a function lies with the SSP division as they play an oversight role, especially the evaluation function. The figure below is a depiction of the SETA's approach to M&E.

Figure 22: MICT SETA's Approach to M&E



The **SSP division** monitors and evaluates the implementation of the Strategic Priorities, research outcomes. This is done through Tracers and Impact studies. Another M&E function that is performed by the SSP has to do with evaluating the alignment of the three strategic Documents, namely: Sector Skills Plan, Strategic Plan, and Annual Performance Plan. At the core, the M&E function performed by the SSP division is to check if there is an impact in the implementation of learning programmes, findings at a final stage are recorded in the Annual Report, which also covers details of a learning culture that exist within the SETA. Mitigation strategies are also outlined at this stage.

In the **LPD division** Monitoring and Evaluation is done to track the implementation of the deliverables, tracking progress against the agreed targets as outlined in the Service Level Agreement through the Quarterly Monitoring Reports (QMR), which are submitted quarterly to DHET. Simply put this is more of Project Monitoring and Evaluation, the evaluation done by LPD is more of process evaluation, the implementation and impact element of evaluation is done by the SSP division. The LPD implements the outcomes of research (Sectoral Priority Occupations List).

The **ETQA division** monitors and evaluates the provision and the outcomes of learner achievements, culminating into certification. Other M&E functions performed by the ETQA include: Accreditation/Re-accreditation Site visits, Monitoring visits, Verification visits, tracking, reporting.

5.2.2 M&E Data to Support Research and Planning

Furthermore, using M&E data is important for demonstrating results as part of accountability to stakeholders in order to inform decision-making. In the case of the MICT SETA, M&E information is key to iterative management in which implementation decisions are based on real-time monitoring information and learning from experience (evaluative information). The following table demonstrates the data used by the three core divisions:

Table 20: Data Used by Three Core Divisions

Division name	Type of M&E information
Sector Skills Planning	Workplace skills Planning/Annual Training Reports (WSPs/ATRs), Impact or Tracer Study reports.
Learning Programmes	Quarterly Monitoring Reports (QMR), Fact file reports, Site Vetting Reports.
Education, Training and Quality Assurance	M&E Reports, Site Verification Reports, Accreditation/Re-accreditation reports.

Most of the M&E data from the other two divisions (LPD and ETQA) is submitted to the SSP for analysis and reporting. The LPD division submits QMR reports to the SSP to facilitate the Tracer and Impact studies. These studies help the SETA to determine if the programmes implemented are producing the intended results, if not the SETA learns from past implementations and comes up with mitigation strategies. Moreover, the ETQA monitors the relevance of qualifications and work together with the Quality Council for Trades & Occupations (QCTO). This exercise of reporting complements the QMR produced by the LPD as it allows the SETA to know which qualifications relevant and which ones are not, thus, contributing to the SETA to fund relevant qualifications.

It becomes apparent that M&E, in itself, should not be seen as having inherent value. The value of M&E does not come from conducting M&E or having such information available; rather the value comes from using the information to monitor, guide and control implementation for enhanced performance and better results.

5.2.3 Extent to which Previous Strategic Priorities Were Addressed

The MICT SETA in the previous financial year had seven strategic priority areas, namely: Improved access to training; Development, and alignment of appropriate qualifications; The Green economy, use of technology to support inclusion; SMME Support; and Cross-sectoral partnerships and projects in the delivery of learning interventions. The table below highlights the status of implementation of these strategic priority areas:

Table 21: Status of Implementation of Strategic Priority Areas

Strategic Priority	Status of Implementation
Priority 1: Improved access to training	The SETA was consistent in addressing this strategic area in the previous financial year. During this period, 3593 learnerships, 1567 internships, and 3971 skills programmes were provided.
Priority 2: Development and alignment of appropriate qualifications	The SETA has consistently prioritized this area. It has been working closely with Microsoft and CompTIA. The aim of the partnership was to align Microsoft Courses to MICT SETA Registered Unit Standards. Moreover, this partnership was important as it recognized that there is a need to assist learners in getting their achievements listed on the National Learner Records Database (NLRD).
Priority 3: Expand skills development to rural areas	The SETA extensively promotes and support skills development in rural areas. The delivery of skills development in rural areas was implemented through the mobilization of stakeholders within the MICT sector to create an enabling environment in rural areas for the provision of skills development initiatives. 40% of MICT SETA interventions were implemented in the rural areas and townships: - Bursary programmes in rural universities (University of Limpopo, University of Venda, and Walter Sisulu).

Strategic Priority	Status of Implementation
	<ul style="list-style-type: none"> - Learnership programme for 100 learners (Moruleng Village – North West) - Learnerships in TVET Colleges (Maluti and Flavius Mareka)
Priority 4: The Green Economy	The SETA has addressed this priority through only one initiative. It has initiated partnerships with service providers such as SAMSUNG on E-waste initiative. The aim of the partnership is to turn or recycle e-waste, such as old computer boards, keyboards; fridges that are no longer in use and turn them into new electronic products. SA has been lagging in this sector and therefore, such an initiative will contribute to skills development in the sense that learners will be given the opportunity to develop new products out of the recycled e-material.
Priority 5: Use of technology to support inclusion	In the previous financial year, the SETA did not focus on this priority. However, for the 2019/20 financial year, the SETA has partnered with Deaf Empowerment Firm (Pty) Ltd (DEF) to maximize on various practices to create a value chain and sustainable transformation through empowerment of deaf youth by supporting coding learnership programmes.
Priority 6: SMME Support	The SETA has consistently supported SMMEs within the context of skills development. There are many partnerships with SMMEs that have yielded beneficial and cross-sectoral results such as the Mzansi Scuba Diving Academy.
Priority 7: Cross-sectoral partnerships and projects in the delivery of learning interventions	The MICT SETA has collaborated with Mzansi Scuba Diving Academy. The SETA funds its 'Underwater Photography Programme' recruiting and training candidates from various townships across South Africa. The point is to enable individuals to be able to track sardine migration underwater using photography, this is a skill that is not readily available to the youth from disadvantaged communities. The MICT SETA sees this as an important opportunity to develop skills at both sectoral level and national level, while also influencing other sectors such as the maritime sector, which falls under the transport sector.

Priorities 4 and 5 from the table above illustrate that there is room for improvement. The reason that these areas were not fully realized fall widely on the fact that the SETA needed partnerships with clear goals and objectives. For such initiatives to happen, the aim is not just to fund initiatives, but any initiative proposed has to have a sustainable impact on the core skills needed in the sector, meaning that the desired intervention needs to address skills development at an impact level.

Strategic priorities such as 'Improved access to training' (priority 1) and the 'Development and alignment of appropriate qualifications' (priority 2) were documented in the 2015/2020 Strategic Plan (SP) and Annual Performance Plan (APP). This relates alignment between the SSP, SP and APP.

5.3 Plan of Action

5.3.1 Mechanisms that need to be placed to address key strategic priority areas

M&E is important for organizations such as the MICT SETA to assess programmes and projects currently, the SETA does not have the capacity to fully implement the M&E function. If such a capacity existed in the previous financial year, red flags of certain strategic priorities not being implemented would have been identified at an early stage. The SSP division going forward has proposed a formal structure to strengthen its ability to perform the existing and future M&E function, this new structure will work closely with the internal auditors to monitor and evaluate key strategic areas across divisions. This new structure will comprise of a Research Monitoring and Evaluation Manager,

Monitoring and Evaluation Advisor and a Monitoring and Evaluation Administrator. This will allow the SETA to understand whether strategic changes need to be made and act accordingly.

5.3.2 Measures to ensure current priorities are achieved

As a point of highlighting baseline information and looking forward to establishing mitigation strategies, the year 2018/19 had seven strategic priority areas which guided the SETA in its strategic implementation. As aforementioned only two key areas were not implemented as per reasons provided above. With the fast emergence of the 4IR, the SETA has adapted forward looking strategies in which it can be responsive to what the sector needs. For the 2019/20 year 6 key strategic priority areas are proposed, namely: Enablement of the 'Fourth Industrial Revolution (IR)', improved access to and take-up of training for priority skills, Expand skills development to rural areas, Inclusivity through technology skills development, SMME Support, particularly with regard to 4IR, and Cross-sectoral partnerships and projects in the delivery of learning interventions. The SETA's approach to ensuring that all these new strategic priorities are achieved will be to form partnerships that go beyond from just implementation, but also have an element of sustainability. Partnering with industrial Centres of Excellence at both national and international level will be an option in the SETAs model of programme implementation.

5.4 Conclusion

In conclusion, the chapter was successful in highlighting the M&E function that exists in the SETA and how M&E data is used. This was useful to understand how decisions are made and see if the existing M&E function contributes to decision making.

The chapter highlighted the work of the various divisions in leveraging M&E to improve delivery of learning interventions. The introduction of a dedicated M&E function will strengthen the SETA's ability to detect opportunities for improvement and react appropriately, ensuring that interventions-and their beneficiaries-benefit from improved efficiency and effectiveness. This will help close the loop from skills research, skills planning, strategic planning, target setting, delivery, and monitoring and evaluation, feeding back into skills research.

The chapter was also successful in highlighting the status of implementation in terms of key strategic key priorities which puts the SETA as a reflective organization and how it can mitigate where there are gaps.

Chapter 6: Strategic Skills Priority Actions

6.1 Introduction

Though there has been widespread transformation of the sector's labour market, in particular the nature of skills demanded, there is some ambiguity as to what extent these are fundamental shifts in the sectoral structure of the economy and what should be the response on the training and education side. This section summarises the key findings that have emerged from the 2019/20 SSP which in turn point to the strategic objectives of the MICT SETA and its stakeholders over the next period. This chapter is informed by the 5 preceding chapters, which are in turn informed by consultations and literature review. The recommended priority actions were drafted with strategic input from MICT SETA senior management and policy directives such as NSDP.

6.2 Key skills findings from previous chapters

In Chapter 1, it was outlined that the MICT sector is made up of 30 727 employers, the vast majority of which are small in size. This will have an impact on training opportunities. Though there are fewer large and medium sized employers – resulting in limited large-scale learnerships and internship programmes, smaller companies are perceived to be intensive incubators and mentors for entrants into the sector.

In general, the MICT sector experienced decreasing rates of economic growth over 2018/19, with the exception of telecommunications which has seen a marked increase in growth rate. Employment numbers remained largely stable, with minimal increases. If that trend continues (with fewer people being employed), stakeholders are of the opinion that employees will increasingly have to learn a new range of skills.

Chapter 2 showed that the MICT sector is dynamic and in constant technological flux. Thus, training and updating skills is a core function rather than a peripheral imperative. The drivers of change for the sector identified the challenges and implications for skills development, with a focus on change brought about by the fourth industrial revolution (4IR). South Africa still lags behind in terms of adopting 4IR technologies and a major contributor to this is the lack of appropriate qualifications in 4IR related fields. Thus, 4IR introduces new opportunities for training, and as new hardware and software products appear on the market, these need to be accompanied with upgrading of courses.

Current economic growth in the sector is argued to be driven by the consumer market with an appetite for imported electronics, particularly cell phones. While this may increase demand for skilled labour in sales and marketing, this may simultaneously downplay need for improving technical skills or for investing in the capacity to innovate new services and products. At the same time, investing in high-end skills in research and development could activate a new economy in this regard.

In Chapter 3 it was highlighted that gaps in critical skills include project management, communication, health and safety, professional etiquette, interpersonal and technical skills. The most hard-to-fill-vacancy is software developer, followed by computer network technician. Completing the sectoral priority occupations list is Database Designer and Administrator.

In 2018, of the 40 qualifications the MICT SETA has listed on the NQF, 18 registered new learners. The National Certificate (Information Technology) in End User Computing drew the most enrolments.

There continues to be a high demand for vendor programmes. These include both short courses that have high price tags and longer, more generalised, courses that can be accessed through TVET colleges and HEIs. The MICT SETA has begun a process of mapping vendor programmes against NQF levels.

In Chapter 4 the various partnerships that the MICT SETA has entered into with professional, academic and government partners were discussed. These include partnerships to provide learning programmes and increase research capacity and access to learning programmes.

Chapter 5 explored the SETA's M&E approach and articulated the functions of the various divisions of the SETA in M&E. Although all three core divisions play, to some extent, a monitoring function, the SSP division consolidates the three divisions and conducts evaluations as well. A plan of action was also presented on how the SETA intends to achieve its priorities.

6.3 Recommended Priority Actions

The following sets out the proposed broad skills development objectives for the sector. These objectives are intended to include efforts made broadly by MICT sector stakeholders.

6.3.1 Priority 1: Enablement of the Fourth Industrial Revolution (4IR)

Chapter 2 articulated the key skills change drivers for the MICT sector, all of which are centred around 4IR technologies. In response to the change brought on by 4IR, MICT SETA needs to enable the key role that the MICT Sector has to play in the development of technologies and products related to 4IR. This will be achieved through the development of the skills required to research, develop, commercialise, implement and support 4IR technologies and products.

Where the relevant qualifications and training courses exist, the SETA will encourage enrolment, particularly at higher education (e.g. network engineering) and basic education level (e.g. mathematics) levels.

Where qualifications and courses need to be developed, the SETA will work with relevant academic institutions, research organisations (e.g. CSIR), public organisations (e.g. SITA) and industry to decide on curricula, teaching methods etc.

In recognising and planning for occupations that are on the National List of Occupations in High Demand and linked to 4IR - this priority action fulfils NSDP outcome 1, which calls for identifying and increasing production of occupations in demand, and outcome 2, which speaks to linking education and the workplace.

6.3.2 Priority 2: Improved access to and take-up of training for priority skills

Whilst it is not possible to strictly regulate provision of training by setting specific targets for every province and sub-sector, it is possible to monitor provision better and to identify gaps and intervene to address them.

Speaking to NSDP outcomes 1 and 2, the SETA will work with stakeholders in each sub-sector to set realistic targets, assess provision and access across provinces, regions, industries, occupations and different size companies, and identify weaknesses. This will take into account the need to prioritise training for occupations and specialisations that enable 4IR.

One of the key strategies of the SETA will be to expand opportunities for Work Integrated Learning. There will be a particular focus on the design of effective internships to make such internships effective bridges into employment.

Addressing NSDP outcome 8, learning pathways need to be communicated with learners in schools, colleges and universities as well as those already employed in the sector who wish to seek entry to occupations that present opportunities for employment in the sector. This will be done through the publication of the MICT SETA career guide as well as in partnership with industry stakeholders. Online platforms and tools will be utilised to expand on this.

6.3.3 Priority 3: Expand skills development to rural areas

The MICT SETA's rural strategy, linked to NSDP outcome 8, is aimed at increasing access to occupationally directed programmes for rural and previously disadvantaged communities (including townships). The MICT SETA strategy aims to respond to the President's youth employment service, which is known as the 'YES initiative'. It aims to address the most pressing socio-economic challenges in the country, particularly poverty and unemployment among the youth. It intends, amongst others,

to scope the skills development needs and priorities in rural areas, provide career and vocational guidance, support government in addressing the e-governance issues and assist aspirant training providers to attain accreditation and deliver on MICT SETA programmes.

6.3.4 Priority 4: Inclusivity through technology skills development

Expanding on NSDP outcome 2, through focused skills development programmes, the SETA will be able to better meet transformational targets, viz. for women learners, learners with disabilities and rural learners.

Initiatives to apply technology in a manner that supports an expansion of employment of people with disabilities in the MICT sector will be identified and supported. This may include the development of skills required for the production of assistive devices (e.g. enabled through artificial intelligence) or training tools (e.g. underpinned by virtual reality) for use by people with disabilities. This may also include the training of people with disabilities in the use of 4IR technologies. Incentives will also be put in place to encourage greater access to MICT sector programmes for people with disabilities.

6.3.5 Priority 5: SMME Support, particularly with regard to 4IR

In developing interventions for SMMEs there are various considerations such as: the ability of an SMME to obtain funding for skills development whether or not it is a levy paying company; the flexibility and accessibility of programmes that recognises the difficulty that small companies have in releasing staff for long periods; the difficulties that small companies have in meeting requirements for learnerships and internships; the potential for established larger companies in the sector to mentor and provide incubator opportunities to smaller less well established businesses.

Addressing NSDP outcome 6, training interventions focused on developing key skills relating to 4IR will be made available to SMMEs, to allow for those SMMEs active in 4IR or related fields to develop more specialised or adjacent skills. This will help further innovation and commercialisation of 4IR technologies in South Africa, further encouraging local production and increased exports.

6.3.6 Priority 6: Cross-sectoral partnerships and projects in the delivery of learning interventions

The SETA will address the challenge of cross-sectoral skills by facilitating inter-SETA discussions and planning. There is a need for some inter-SETA projects that fund interventions relating to MICT skills located in other sectors as well as skills interventions developed in other SETAs (e.g. finance, corporate communication) that can be delivered in the MICT sector. There is a need for partnerships with industry stakeholders and with public TVET colleges (in response to NSDP outcome 5) and universities to enable much of this strategy to be implemented.

6.4 Measures Planned to Support National Strategies and Plans

The MICT works with its various partners to support the achievement of NDP objectives. Through continued funding of bursaries at research level the SETA endeavours to propel the sector's innovation system. The MICT SETA strives to continue to be a skills development partner, ensuring that along the way the requisite skills are being developed. Similarly, to the NDP objectives, the MICT SETA will leverage its partnerships with industry to drive innovative research to offer opportunities to small business to play a significant role in the country's manufacturing and technology ecosystem. Equal focus will be channelled towards continued support for SMEs through more focused internship and incubation programmes. The table below shows this effort by the SETA.

Table 22 : MICT SETA's efforts to support National Strategies and Plans

<i>Planning Priority</i>	<i>Priority Action</i>
National Development Plan	The MICT SETA together with stakeholders in the NSI will engage in processes to help commercialise research. The SETA strategic plan emphasises provision of financial and non-financial support to SMMEs, NGOs, NLPEs, CBOs. Partnerships with stakeholders like SEDA to encourage incubation would play a key role in achieving sustainability and growth of small businesses in the sector.
White Paper on Post Schooling Education and Training	The White paper calls for an integrated post schooling and education system and an efficient skills development system. A lot of the targets identified in the White Paper have found expression in the NDP. The MICT SETA will ensure expanded access to TVET and University education through bursaries.
National Skills Development Plan (NSDP)	In the new planning cycle, the MICT SETA responds to the NSDP outcomes by determining and addressing occupations in high demand, strengthening TVETs, CETs and work integrated learning (WIL), increasing the number of workers trained and supported and supporting SMMEs, Cooperatives and rural learners. These outcomes are pursued by the SETA in the Recommended Priority Actions above. In addition, there are efforts to mainstream provision of vendor type as well as SETA accredited programmes, especially at NQF 4 through partnerships with TVET colleges.
New Growth Path (NGP)	Some of the programmes identified in IPAP are finding expression through the SIPs. As stakeholders in the sector start to engage in these programmes, the MICT SETA would be a skills development partner, ensuring that along the way the requisite skills are being developed.
Industrial Policy Action Plan (IPAP)	Some of the programmes identified in IPAP are finding expression through the SIPs. As stakeholders in the sector start to engage in these programmes, the MICT SETA would be a skills development partner, ensuring that along the way the requisite skills are being developed.
National Integrated ICT Policy White Paper	The MICT SETA in this regard approaches to address supply-side issues and infrastructure roll-out, including managing scarce resources such as spectrum and numbers and interventions to facilitate open access and rapid deployment of infrastructure. The SETA commits itself to facilitating multi-stakeholder participation in the drive for inclusive digital.
Strategic Integrated Projects	There is a need for a skill development package that includes skills programmes for those who will be entrusted with managing the broadband infrastructure. MICT SETA will through its skills development interventions endeavour to support the SIPs.

6.5 Conclusion

The MICT SETA will continue to strive towards the continuous improvement of planning and implementation efforts, as well as the constant monitoring of sector-related changes and developments. The skills development interventions that the MICT SETA will be implementing provide the most relevant and up-to-date learning programmes that afford learners the opportunity to acquire skills that are appropriate to economic and societal needs. The priority actions identified in this plan find expression in the MICT SETA strategic plan and annual performance plan and will serve as a guide for the SETA in support of national and sectoral objectives in the best manner possible. Furthermore, the alignment of future strategically oriented SETA plans will also serve to strive towards the achievement of the abovementioned priority actions.

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