merSETA
MANUFACTURING, ENGINEERING AND RELATED SERVICES SETA

SECTOR SKILLS PLAN

UPDATE

2017/18-2021/22

PROMOTING ARTISAN DEVELOPMENT FOR EMPLOYABILITY

1 August 2017

OFFICIAL SIGN OFF

FINAL SUBMISSION OF REQUIRED SSP DOCUMENTS AS PER DHET GUIDELINES FOR SSP UPDATE 2017/2018

It is hereby certified that this updated version of the Sector Skills Plan takes into account all the relevant policies, legislation and other mandates for which merSETA is responsible and accurately reflects the stipulated submission requirements as communicated by the Department of Higher Education and Training (DHET).

This submission comprises merSETA Cover Letter, Final Continuous Improvement Plan and the Final SSP which was developed in accordance with the SSP Framework produced by DHET.

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1 August 2017

EXECUTIVE SUMMARY

The Sector Skills Plan update for 2017/2018, adheres to the SSP framework as prescribed by the Department of Higher Education and Training (DHET), the third iteration of this framework.

merSETA has produced the SSP in collaboration with its key stakeholders and has capitalised on its recent primary research and Chamber Research projects to inform the contents of the SSP. In addition, the SSP team has co-operated with the SETA Cluster (Goods Cluster) and participated in DHET SSP workshops and feedback sessions to produce the SSP report.

This SSP summarises the manufacturing, engineering and related services sectors profile in terms of its employer and employee composition, economic trends and drivers of change, it highlights the role of partnerships, skills issues and skills mismatches which all culminates in priority actions to be undertaken to meet the skills needs of the sector.

With regards to the current context of the sector in terms of its profile and the economic climate, the SSP demonstrates the significant impact that global and local economic conditions have had on the sector. The number of employees in the sector has decreased substantially. Overall Stats SA reported further job losses in manufacturing however these have slowed since the previous financial year. The manufacturing, engineering and related services sector represents a significant proportion of the total manufacturing sector. Overall, trends in manufacturing have a major impact on merSETA stakeholders.

The number of vacancies in the sector has decreased year on year with continued concern over further job losses and freezes on headcount. These trends do not bode well for the sector and will further contribute to national levels of joblessness and economic uncertainty.

Furthermore, the sector must remain globally competitive, as it has seen a decline in traditional manufacturing production in favour of automation and higher technological intensity. Literature however suggests that South Africa never fully participated in industrialisation and hence will struggle under the pressures of attaining a service driven economy. All reports promote the need to entrench industrialisation and ensure rapid pace in terms of world-class production methods.

The data also suggest that there is a growing pool of small and medium enterprises operating in the sector. The skills needs of these businesses should be given increased consideration in terms of merSETA support. Developments in advanced manufacturing must be closely monitored to ensure adequate skills initiatives are applied to meet skills demands and support the rise of black industrialists.

Analysis of demand has shown continued and increasing demand for mid-level to highly skilled workers. Low skilled workers have borne the brunt of the negative employment trend. There continues to be challenges in terms of transformation at the various occupational levels; black workers are still being represented in low level occupations, with relatively lower representation at professional and managerial levels. In terms of the age profile of workers, the majority of new entrants into the sector are semi-skilled youth. There is however an indication that younger workers are also tending to be more represented in the technical and professional skills levels in accordance with the trend to automation and innovation in the sector. Overall, we do see some positive movement in terms of

opportunities for the previously disadvantaged and women, but the sector's demographic profile remains minimally untransformed.

Key skills issues have revealed that the merSETA has a significant role to play in terms of its alignment with national development priorities. There is however a trend emerging in the general economy as well as national development that calls for a focus on skilled workers in the IPAP, SIPs and Operation Phakisa. Skills for the green economy are also in ever increasing demand both for sustainable production and renewable energies.

When considering the skills mismatches within our sectors, the merSETA has surmised that a shortage of highly skilled people is one of the factors that has contributed to the slow adoption of technology, lowered productivity, lowered competitiveness and high cost of production over time. The labour force was unable to keep up with the demands of industry at a global level. Skills requirements of the evolving sector are dependent on highly analytical and problem solving ability.

Poor throughput of learners with mathematics (maths), science and engineering hampers efforts to compete globally. There is a prevailing trend in our sector which demonstrates a reluctance of employers to employ TVET graduates due to a lack of practical exposure (both learners and lecturers), up-to-date theoretical knowledge and low work-readiness. Furthermore industry has identified the lack of support for smaller and emerging sector skills needs for occupations at the cutting edge of technology and global competition.

merSETA has capitalised on its partnerships within the Technical Vocational Education and Training (TVET) sector to best assist and understand the skills needs and dynamics from industry. merSETA has local and international partnerships with Higher Education Institutions (HEIs) and TVET Colleges to develop greater synergies in terms of skills supply and demand. These partnerships not only speak to skills development needs in terms of producing a relevant supply of skills, but also fosters a dynamic pool of professional engagements and projects to critically assess skills within our sectors and meet current and future expectations of the sector.

The implementation of identified skills development priorities are linked to a range of inter-related strategic issues that arise from the sector analysis. The importance of appropriate local and regional level skills development support to affect positive change in the informal, emerging businesses and SME sectors cannot be overstated.

merSETA Research Process and Methods

merSETA's SSP research process should not be seen as a process consisting of phases that follow on each other. The research process should be seen as a process of various activities occurring simultaneously to ensure the most accurate data is presented in the SSP. The main activities which can be seen as part of the process, although not exhaustive include the analysis of Workplace Skills Plans (WSPs), considering Chamber research report findings, desktop research, secondary data analyses, and, consultations with the SSP committee, Governance and Strategy Committee and Chamber Committees. The WSP data is analysed for vacancies, employment, unfilled vacancies, number of companies, PIVOTAL plan, OFO codes and Chamber statistics. The WSP forms the largest, most reliable source of information from our stakeholders directly. Findings from Chamber research reports feed into the SSP as well. Desktop research informs the direction of sector requirements in terms of skills and informs the verification process whilst Chamber workshops enable merSETA to gain key inputs for any skills omitted in the desk research verification and anecdotal updates while also providing a context to the skills list. The Accounting Authority assists with a high level review of skills verification and anecdotal updates. The table below indicates the research projects that have fed into the 2017/2018 SSP.

Project	Topic	Study Design	Objectives	Data Collection Tool	Sample Size	Scope Of Study	Data Sources Used	Time Frame
Motor Chamber Research phase 2	"merSETA follow-up future skills development research project for the Motor Chamber- Report 3 & 4: Pilot project and consolidated report".	Qualitative and quantitative triangulations	Determine actual skills requirements in relation to the identified change drivers within the various geographical and market sectors to determine what type of motor skills sector skills are required in those areas. All Chambers research projects to inform the merSETA Sector Skills Plan	• Desktop research • Interviews with key stakeholders (Structured questionnaire) • Focus groups • Enterprise stakeholder workshop	Industry practitioner: 6 Small practitioner: 8 Motor Chamber Officials: 4 **Total sample size: 18**	Industry practitioners at merSETA head office, practitioners in rural and informal areas. More specifically practitioners outlining large and medium metropolitan centres, as well as practitioners in rural areas distant from any city and municipal economists of geographical market areas.	Data from the Bureau for Economic Research was used. In-depth desktop research was done, focus groups were held and telephonic consultation with key stakeholders were held.	May 2014- May 2015

Project	Topic	Study Design	Objectives	Data Collection Tool	Sample Size	Scope Of Study	Data Sources Used	Time Frame
Metal Chamber Research phase 2	"Occupational skills demand dynamics in the metal industry". "How do we change the face of training to produce technical skills for the metal industry in the 21st century?"	Qualitative and quantitative triangulations	Identify future trends and better planning scenarios in terms of skills supply and demand. All Chambers research projects to inform the merSETA Sector Skills Plan	• Desktop research • Interviews with key stakeholders (semi-structured) • Focus group workshop, survey	The survey was sent to all firms in the sector which amounts to 2094 firms. Of these firms only 126 responses were received. **Total sample size: 126**	Firms that employ people in the metals and engineering industries. Focussing on sub sectors, region, company size, race, gender, disability and occupational levels.	Data from the Career Junction Index was used along with survey, interviews and workshops. A key data source used in this study was the Quarterly Labour Force Survey (QLFS) published by Stats SA.	April 2014-Aug 2015
Project	**Topic**	**Study Design**	**Objectives**	**Data Collection Tool**	**Sample Size**	**Scope Of Study**	**Data Sources Used**	**Time Frame**
Plastics Chamber research Phase 3	"Demand Profiler Foresight Analysis and Software Update"	Qualitative research design	Explore and provide research-based recommendations on how the plastics and related industries can best attract, develop and retain technical talent in order to ensure that the industry continues to "survive and thrive" in an increasingly competitive and changeable marketplace. Furthermore, to validate and expand the qualitative information collected in Phases I and II about trends influencing skills in the plastics industry.	• Focus groups • Desktop literature review	10-15 per focus group (three focus groups) **Total sample size: 30-45**	Plastics and related industries. Each workshop included an active member of the Plastics Institute, production managers, research and development and related managers, managing directors as well as related managers	Existing data collected and analysed in Phases I and II of the research project were summarised and provided as inputs/ "conversation starters" in the Focus Groups. Furthermore, selected articles, books etc., on the following were also used:	April 2014-August 2015

							*An international plastics sector (Canada) *Quality improvement programmes *literature on influencing change	
Project	**Topic**	**Study Design**	**Objectives**	**Data Collection Tool**	**Sample Size**	**Scope Of Study**	**Data Sources Used**	**Time Frame**
New Tyre Chamber Research phase 2	**"**Skills demand foresight analysis research report"	Qualitative and quantitative triangulations	To update skills demand foresight analysis research report following on from phase 1 of the Chamber research projects. All Chambers research projects to inform the merSETA Sector Skills Plan	• Telephonic interviews • High-level secondary desktop review • Mix of secondary (desktop) and primary (interviews) research stakeholder interview questionnaires	Not specified	• Synthetic rubbers • End-of-life tyres (ELTs) • Upgrading of capital equipment • Lean manufacturing Tyre companies namely Bridgestone, Apollo, Sumitomo, Continental, Goodyear and then merSETA.	Focused industry reports, reports compiled by prominent international tyre industry associations, academic articles, relevant industry news publications, and leading global tyre manufacturer annual reports.	June 2014-June 2015
Project	**Topic**	**Study Design**	**Objectives**	**Data Collection Tool**	**Sample Size**	**Scope Of Study**	**Data Sources Used**	**Time Frame**
Auto Chamber Research phase 2	"The capacities of technical high schools and	Qualitative research	The study attempts to understand the capability of the institutions to interact using the expanded understanding of capability described	• literature review • Focus groups	Eastern Cape 13, Gauteng, 16,	Technical high schools and TVET colleges, in provinces with an automotive industry	Focus groups by regions with representatives of employers,	September 2014-September 2015

	TVET colleges to meet the training needs of the automotive industry"		in the theoretical framework. Focussing on the capacities of TVET schools and colleges to meet the training needs of the automotive industry. (all Chambers research projects to inform the merSETA Sector Skills Plan)	• Research questionnaire	KwaZulu -Natal 13 **Total sample size: 42**	presence including the Eastern Cape, Gauteng, and Kwa-Zulu Natal.	technical high schools, and TVET colleges.	
Project	**Topic**	**Study Design**	**Objectives**	**Data Collection Tool**	**Sample Size**	**Scope Of Study**	**Data Sources Used**	**Time Frame**
TRACER study	TRACER STUDY Final Report - 30 March 2016	Quantitative and qualitative approach	To take stock of the employment status of graduates, determine learner post learning program activities, establish expectations of learners who have successfully completed their learning programme, to develop a deeper analysis of enablers, benefits and obstacles of employment opportunities after the learner's final assessments.	• Structured questionnaires qualitative engagement with the training providers and employers • Literature review	Total of 1030 learners Total of 8 training companies Total of 20 employers **Total sample size: 1058**	The analysis was generated as per the demographics variables of race, gender, age, geographical spread and the type of analysis in this reports includes: • The post qualification employment rates both in terms of geographic spread, race, gender and sub-sectorial spread. • Post qualification migration rates in terms of geographic spread, race, and gender. • Post qualification studies in terms of geographic spread, race	merSETA learner database of learners who have completed learning program/s with an institution. Other data sources as were available which included tracer/impact assessment reports from the merSETA and of similar organisations as well as qualitative engagements with employers and training providers. Data on impact assessments and tracer studies from SETAs and other organisations were perused and reviewed along with international impact assessment reports and as well as a variety of research reports	August 2014- December 2014 Learner data from the SETA year April 2012 - March 2013 was used.

						and gender. • Links between the different learning pathways and employment. Sample group (learner, employers and training providers) .	and secondary data telephonic interviews.	
Project	**Topic**	**Study Design**	**Objectives**	**Data Collection Tool**	**Sample Size**	**Scope Of Study**	**Data Sources Used**	**Time Frame**
Composites Skills Mapping Project	"Development of Skills and Occupation Map for Composites Industry"	Qualitative and quantitative triangulations	The objective of this project is to develop a skills and occupations map for the composites industry, in support of the Composites Industry revitalisation project spearheaded by CSIR Strategic Implementation Unit (SIU).	Value-chain approach consisting of : compiling a value chain of the manufacturing processes, link a job or jobs to each mode of the value chain, compile a skills profile of each job including products or services , task, core skills and foundational knowledge. interviews with key staff , selected plant visits.	Total sample size: between 20-25 companies	A selection of companies that represent the broad scope of the composite manufacturing processes. Key staff, ECO/owner, production managers and R&D managers.	Plastics Chamber Regional Workshops Plastics Chamber Research Project (Phase II and Phase III).	October 2015- March 2016
Project	**Topic**	**Study Design**	**Objectives**	**Data Collection Tool**	**Sample Size**	**Scope Of Study**	**Data Sources Used**	**Time Frame**
Metal Chamber	"Metal Sector Occupations in	Qualitative and	Conduct occupational studies on the following high demand occupations:	• Desk Research • Key stakeholder		Occupational studies on the following high	Metal Chamber research project	January 2016- June

Research phase 3	high demand: Supply-side Challenges and Specialised training needs".	quantitative triangulations	Boilermaker, welder, millwright, fitter and turner, toolmaker and patternmaker. This is done to determine what specialised skills will be required for artisans in these trades over the next three to five years to remain relevant, productive and supportive of improving the competitiveness of metal industry firms. (all Chambers research projects to inform the merSETA Sector Skills Plan)	interviews • Workshops with industry experts • Focus group discussions with trainers/instructors	Not yet specified	demand occupations: boilermaker, welder, millwright, fitter & turner, toolmaker and patternmaker.	phase II. Interviews with key industry stakeholders, group discussion and working groups.	2016
Project	**Topic**	**Study Design**	**Objectives**	**Data Collection Tool**	**Sample Size**	**Scope Of Study**	**Data Sources Used**	**Time Frame**
Plastics Chamber research phase 4	"Explore the skills and knowledge related or linked to innovative practices in order to grow the Plastics industry in South Africa".	Qualitative and quantitative triangulations	The overall stated objective of this (fourth) round of research is "to explore the skills and knowledge related or linked to innovative practices in order to grow the Plastics industry sector in South Africa. **Towards this end the research objectives are to:** *Determine the innovation practices adopted by companies in order to build the right innovation capabilities. *Stratify the degree of innovative practice within the plastics industry *Explore in-depth innovative practices adopted by the most innovative companies.	• Desktop research • Semi-structured in-depth interviews • 12 Interview per province **Total of 48 interviews**	12 Interview per province **Total of 48 interviews**	The research builds on previous research projects, focussing on the: Management level Engineering professional level Artisan level In this way four companies per province will be targeted.	Existing data collected and analysed in previous phases of the research project.	December 2015- June 2016

			*Develop a matrix of skills, knowledge and abilities for creating an innovation culture. The purpose or objective of the all Chambers research projects is to inform the merSETA Sector Skills plan.					
Project	**Topic**	**Study Design**	**Objectives**	**Data Collection Tool**	**Sample Size**	**Scope Of Study**	**Data Sources Used**	**Time Frame**
Auto Chamber Research phase 3	"Are the unemployed shop floor employees who undertook the NCAMA level 2 Qualification, able to meet the technology and global requirements for Industry".	Qualitative and quantitative triangulations	Look at the NCAMA level 2 qualification and describe the experiences of those employees and employers within the OEM sector Link the experiences of the NQF 2 to the literature regarding change/ education and to ensure the validity of research Identify 'best-fit' curriculum needs from the Qualifications and to the OEM's Identify what part of the curriculum added the most valuable to the OEMS Identify enablers and inhibiters in the workplace that can be addressed to promote the NCAMA curriculum and to recommend the articulation of a NQF level 3,4,5 qualification is deemed feasible for the OEM's. (inform the SSP)	• Focus groups	Not yet specified	Various industries that engaged with the NCAMA qualification.	N/A	December 2015- June 2016

ACRONYMS

AATP	Accelerated Artisan Training Programmes
AIDS	Acquired Immune Deficiency Syndrome
AIS	Automotive Investment Scheme
AMT	Automatic
ARPL	Artisan Recognition Prior Learning
ATD-TTT	Artisan and Technologist Development Technical Task Team
ATR	Annual Training Report
APDP	Automotive Production and Development Programme
BER	Bureau for Economic Research
CAD/CAM	Computer-Aided Design/Modelling
CBQ	Cost Benefit Quality
CEPPWAWU	Chemical Energy Paper Printing Wood and Allied Workers Union
CETEMF	Capital equipment, transport equipment, metal fabrication
CHE	Council for Higher Education
COMET	Competence Measurement in Education and Training
CPI	Consumer Price Index
CNC	Computer Numerical Control
CPD	Continuous Professional Development
CSIR	Council for Scientific and Industrial Research
DHET	Department of Higher Education and Training
DoL	Department of Labour
DPRU	Development Policy Research Unit
DSAP	Dual System Apprenticeship Programme
Dti	Department of Trade and Industry
ECSA	Engineering Council of South Africa
ESSA	Employment Services South Africa
FET	Further Education and Training
GET	General Education and Training
GDP	Gross Domestic Product
GWM&E	Government-Wide Monitoring and Evaluation
HEI	Higher Education Institutions
HEMIS	Higher Education Management Information System
HET	Higher Education and Training
HIV	Human Immunodeficiency Virus
HSRC	Human Sciences Research council
ICT	Information and Communication Technology
IDC	Industrial Development Corporation
IDZ	Industrial Development Zone
IPAP	Industrial Policy Action Plan
JSE	Johannesburg Stock Exchange
LMI	Labour Market Intelligence
LMIP	Labour Market Intelligence Partnerships
MBA	Master of Business Administration
merSETA	Manufacturing, Engineering and Related Services Sector Education and Training Authority
MHCV	Medium and Heavy Commercial Vehicles
NAACAM	National Association of Automotive Component Manufacturers
NAMB	National Artisan Moderation Body
NATED	National Technical Education
NCPC-SA	National Cleaner Production Centre of South Africa
NCV	National Certificate (Vocational)
NDP	National Development Plan
NEET	Not in Employment, Education or Training
NGO	Non-governmental Organisation
NGP	New Growth Plan
NMMU	Nelson Mandela Metropolitan University
NQF	National Qualifications Framework
NSDS	National Skills Development Strategy
NSF	National Skills Fund
NUMSA	National Union of Metalworkers of South Africa
NYDA	National Youth Development Agency
OEM	Original Equipment Manufacturers
OFO	Organising Framework for Occupations
PDI	Previously Disadvantaged Individual
PhD	Doctor of Philosophy
PICC	Presidential Infrastructure Coordination Committee
PIVOTAL	Professional, Vocational, Technical and Academic Learning
PlasticsSA	Plastics Federation of South Africa
PPP	Public-Private Partnership
PWD	People with Disabilities
QCTO	Quality Council for Trades and Occupations
QLFS	Quarterly Labour Force Survey
QMR	Quarterly Management Report
R&D	Research and Development
RAP	Retrenchment Assistance Programme
Redisa	Recycling and Economic Development Initiative of South Africa
REAL	Centre for Researching and Learning
Rm	Rand (million)
RMI	Retail Motor Industry
RPL	Recognition of Prior Learning
SA	South Africa/South African
SAA	South African Airways
SADC	Southern African Development Community
SAQA	South African Qualifications Authority
SDL	Skills Development Levy
SEIFSA	Steel and Engineering Industries Federation of South Africa
SET	Science, Engineering and Technology
SETA	Sector Education and Training Authority
SEZ	Special Economic Zone
SIC	Standard Industrial Classification
SIP	Special Infrastructure Project
SME	Small- and medium enterprises
SMME	Small, medium and micro-enterprises
SOE	State Owned Enterprise
SSP	Sector Skills Plan
Stats SA	Statistics South Africa
STEM	Science, Technology, Engineering and Mathematics
TLS	Training and Lay off Scheme
TVET	Technical & Vocational Education and Training College
UCT	University of Cape Town
WELA	Women in Engineering Programme
WIL	Work Integrated Learning
WSP	Workplace Skills Plan
WTO	World Trade Organisation

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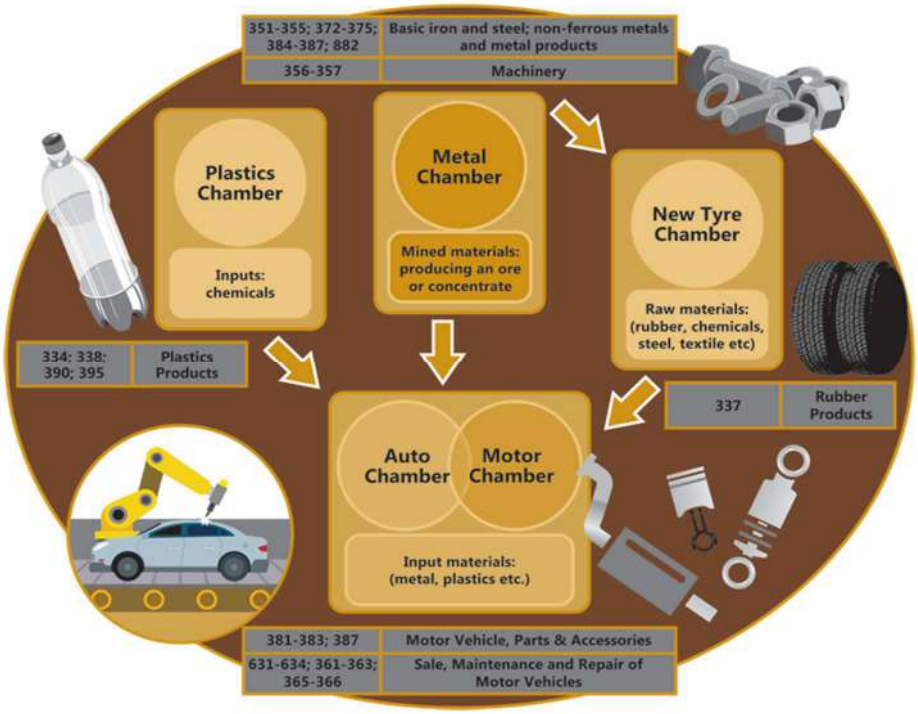
1 SECTOR PROFILE

The purpose of this chapter is to present the profile of the manufacturing, engineering and related services sector. It elaborates on the sector scope of coverage, key role players, economic performance, profile of employers and employees. The chapter also describes the major sector characteristics that influence sector skills needs and skills development requirements.

1.1 SCOPE OF COVERAGE

The merSETA, established in terms of the skills development legislation of 1998, includes a range of manufacturing activities in addition to a few related service and retail activities. On the basis of the three-digit Standard Industrial Classification (SIC) codes used in capturing the data for the National Accounts, figure 1 below outlines the industrial activities aligned to the merSETA scope of coverage and classifies them by Chamber. The figure depicts the interrelationships between the Chambers and demonstrates flow of inputs.

Figure 1: merSETA Scope of Coverage by SIC Code and Chamber (SIC codes are presented in the grey boxes)**



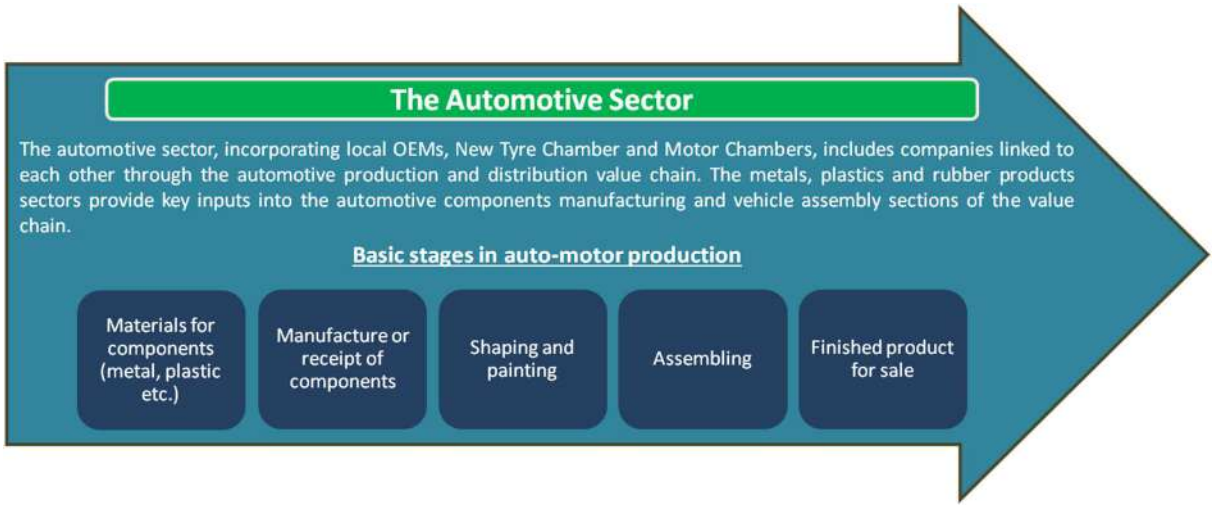
As demonstrated in figure 1, merSETA member companies belong to one of five Chambers. This five-Chamber structure does not however totally align with the National Accounts data or with the references in the literature to the firms contained in this group, which generally refer to the metals industry, the automotive industry (combining the Auto and Motor Chambers), or the plastics manufacturing industry. Furthermore, while the majority of merSETA firms fall within the overall manufacturing sector in the National Accounts data and make up a sizeable proportion of total SA manufacturing, the merSETA also includes firms that fall into the retail and construction sectors. In terms of the specific Standard Industrial Classification codes that fall into the merSETA scope of coverage, table 1 below outlines the codes at 3 digit level, Chamber and industrial sector.

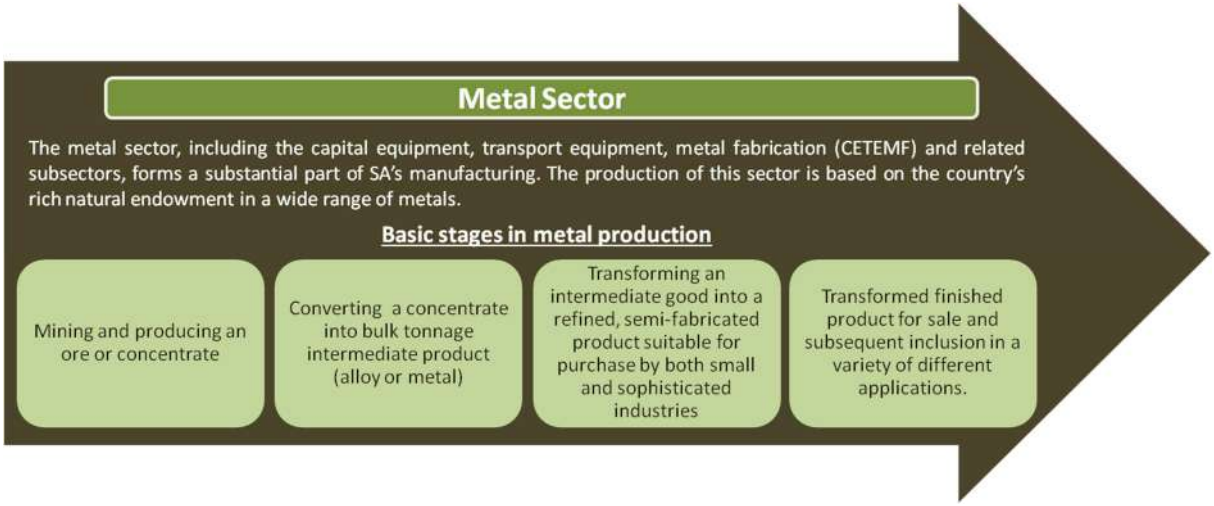
Table 1: merSETA Scope of Coverage by SIC Code, Chamber and Industrial Sector

Chamber	SIC	Description	Sector
Auto	381	manufacture of motor vehicles	**Manufacturing**
Metal	351	manufacture of basic iron and steel	**Manufacturing**
	352	manufacture of basic precious and non-ferrous metals	
	353	casting of metals	
	354	manufacture of structural metal products, tanks, reservoirs and steam generators	
	355	manufacture of other fabricated metal products; metalwork service activities	
	356	manufacture of general purpose machinery	
	357	manufacture of special purpose machinery	
	358	manufacture of household appliances n.e.c.	
	361	manufacture of electric motors, generators and transformers	
	362	manufacture of electricity distribution and control apparatus	
	363	manufacture of insulated wire and cable	
	365	manufacture of electric lamps and lighting equipment	
	366	manufacture of other electrical equipment n.e.c.	
	371	manufacture of electronic valves and tubes and other electronic components	
	372	manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	
	373	manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods	
	374	manufacture of medical appliances and instruments and appliances for measuring, checking, testing, navigating and for other purposes, except optical instruments	
	375	manufacture of optical instruments and photographic equipment	
	384	building and repairing of ships and boats	
	385	manufacture of railway and tramway locomotives and rolling stock	
	386	manufacture of aircraft and spacecraft	
	387	manufacture of transport equipment n.e.c.	
	503	building installation	**Construction**
	504	building completion	
Motor	382	manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	**Manufacturing**
	383	manufacture of parts and accessories for motor vehicles and their engines	
	387	manufacture of transport equipment n.e.c.	
	631	sale of motor vehicles	**Retail**
	632	maintenance and repair of motor vehicles	
	633	sale of motor vehicle parts and accessories	
	634	sale, maintenance and repair of motor cycles and related parts and accessories	
New Tyre	337	manufacture of rubber products	**Manufacturing**
Plastics	334	manufacture of basic chemicals	**Manufacturing**
	338	manufacture of plastic products	
	395	recycling n.e.c.	

1.1.1 Industrial Overview

This section provides a depiction of each of merSETA sectors' industrial activities and outputs. The motor and new tyre sectors could not be explicitly depicted due to the overlap within the automotive sector.





1.2 KEY ROLE PLAYERS

The industry is shaped primarily by big business, but is also influenced by national priorities and watchdog organisations which monitor and regulate industry. The key industry players within merSETA's sectors includes some of the world's largest Original Equipment Manufacturers (OEMs), large steel and engineering companies, large plastics manufacturers, large motor retail and service companies and some of the largest global tyre manufacturers. The tables below identify and describe the role of these players in the industry. In the below table, the key players representing workers and employers in the Metal, Engineering and Related Services Sectors are highlighted.

Table 2: Key Regulatory Organisations in the merSETA Scope of Coverage

Organisation type	Name of organisation	Information	Main Role
Labour Organisations	National Union of Metalworkers South Africa (NUMSA)	NUMSA is one of the bigger unions in the merSETA's manufacturing and related subsectors. NUMSA represents workers from the engineering (steel production), vehicle assembly, automotive components manufacturing, new tyre, plastics and electronics manufacturing subsectors.	Unions play a significant role in advocating and fighting for worker's rights, skills development and improving conditions of employment and advocating for transformation among other things.
	Chemical Energy Paper Printing Wood and Allied workers Union (CEPPWAWU)	This union represents workers in the plastics sector.	
	Metal and Electrical Workers Union of South Africa (MEWUSA)	This union represents workers in the plastics and metal sector.	
	Solidarity	Solidarity represents workers across the merSETA sectors.	
	United Association of South Africa (UASA)	Represents close to 75 000 workers across merSETA industries.	
	Motor Industry Staff Association (MISA)	Represents employees in the retail motor industry.	
Employer Organisations	The Steel and Engineering Industries Federation of Southern Africa (SEIFSA)	This federation represents employers in the metal and engineering sectors.	Employer organisations represent members in collective bargaining, data and information gathering and skills development.
	Automobile Manufacturers Employers Organisation (AMEO)	Represents all South African vehicle Original Equipment Manufacturers – OEMs.	
	Retail Motor Industry Organisation (RMI)	Represents the retail segment of the motor industry.	
	The South African Tyre Manufacturers Conference (SATMC)	This organisation's members comprise the local tyre manufacturers in South Africa, i.e. Bridgestone, Continental, Goodyear and Sumitomo.	
	Plastics South Africa (Plastics SA)	This federation represents employers in all plastics sectors including polymer producers and importers, converters, machine suppliers, fabricators and recyclers.	
Professional Organisations	Engineering Council of South Africa (ECSA)	The ECSA's primary role is the regulation of the engineering profession in terms of the Engineering Profession Act (EPA),	Its core functions are the accreditation of

Organisation type	Name of organisation	Information	Main Role
		46 of 2000. There has been continued growth in registration numbers at ECSA with an increase from 43 967 registrations on 31 March 2014 to 45 806 registrations on 31 March 2015 which is a 4.1% increase (ECSA, 2015).	engineering programmes, registration of persons as professionals in specified categories, and the regulation of the practice of registered persons.
Bargaining Councils	National Bargaining Forum (NBF)	Non-statutory centralised bargaining for the Automotive Assembly sector formed by NUMSA and Automobile Manufacturers Employer Organisation (AMEO) to which all 7 original equipment manufacturers (OEMs) belong.	The Labour Relations Act provides for the self-regulation of industries through the medium of Bargaining Councils. Bargaining Councils deal with collective agreements, solve labour disputes, establish various schemes and make proposals on labour policies and laws (DOL 2016).
	Metal and Engineering Industries Bargaining Council (MIEBC)	Provides for the co-regulation of stable and productive employment relations in the metal and engineering industries.	
	Motor Industry Bargaining Council (MIBCO)	Create and maintain industrial stability in the Motor Industry.	
	Bargaining Council for the New Tyre Manufacturing Industry	Represents New Tyre Industry in terms of regulation.	

1.2.1 Key Employers

Employment in the mer-sectors' industry is driven primarily by large businesses that employ the most people. The table below, represents some of the bigger employers under the merSETA scope of coverage. Employment differentials presented in the brackets are related to employees of the top ten largest employers for each of the mer-sectors.

Table 3: Key Employers by Sector

Auto (employ>150)	Metal (employ>1500)	Motor (employ> 1600)	New Tyre(employ>35)	Plastics (employ >500)
Mercedes Benz South Africa Ltd	ArcelorMittal SA	McCarthy Limited	Continental Tyre SA Pty Ltd	Polyoak Packaging Cape
Volkswagen of South Africa (Pty) Ltd	Roshcon Pty Ltd	Unitrans Automotive A Division of JDG Trading (Pty)	Bridgestone South Africa (Pty) Ltd	KLT Automotive & Tubular Products SA Pty Ltd
Ford Motor Company of Southern Africa	Murray & Roberts Power & Energy A Division of M&R	KIA Weltevreden Park	Sumitomo Rubber South Africa (Pty) Ltd	Multiknit,sakpro,knittex & Multiknit Internat
BMW SA (Pty) Ltd	Macsteel Service Centres SA 2005	Express Employment Professionals SA (Pty) Ltd	GOODYEAR SA (Pty) Ltd (Walmer)	Mondi Versapak Pty Ltd
Nissan Sa Pty Ltd	Barloworld Equipment	CMH Holdings Pty Ltd	Continental Tyre Sa (Pty) Ltd	Zibo Containers Pty Ltd
General Motors of South Africa (Pty) Ltd (PE)	BMG	Route Management	Leader Rubber Company Sa	Polyoak Packaging Gauteng
Scania South Africa Pty Ltd	Phoenix Steel Gauteng	Hesto Harnesses Pty Ltd	ZF Lemforder Sa	Boxmore Plastics SA (Pty) Ltd
Marcopolo South Africa (Pty) Ltd	AVENG (AFRICA) MANUFACTURING	Phakisa Technical Services Pty Ltd	Truval Manufacturers CC	Marley Pipe Systems (SA) Pty Ltd
RENAULT South Africa Pty Ltd	Aberdare Cables Pty Ltd	G.U.D. Holdings Pty Ltd	Rubber Engineering Africa (Pty) Ltd	Mpact Plastics
Man Bus & Coach Pty Ltd	Columbus Stainless (Pty) Ltd (t1c3)	Tiauto Investments (Pty) Ltd	Letaba Belting CC	Apex Power Cordset Technologies

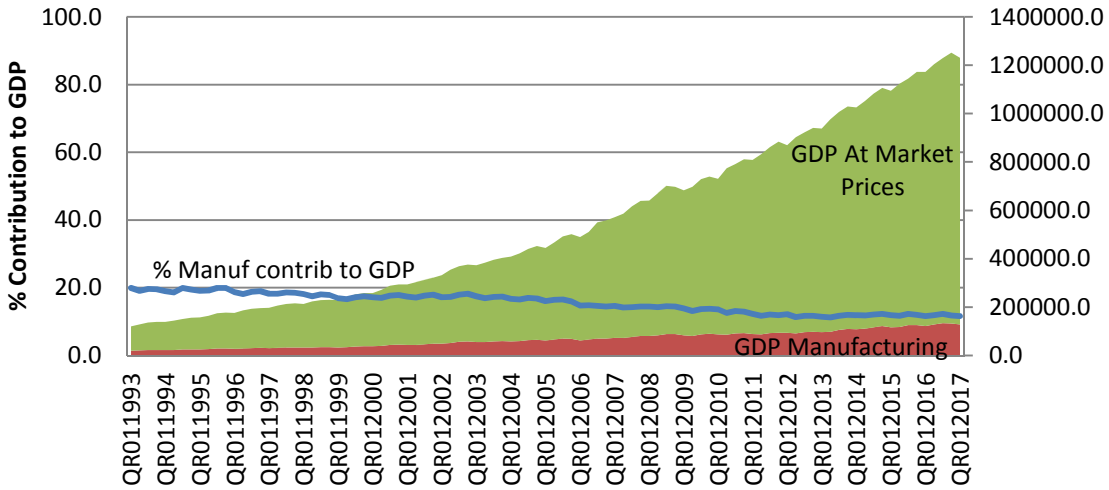
While the table above documents some of the bigger employers in the manufacturing, engineering and related services sectors, it should be noted that other players making waves in the industry are those who despite being small, make a significant contribution to the economy through increased investments and growing exports. The Department of Trade and Industry (DTI) has noted that these players, particularly in the auto industry have recognised opportunities for exports (particularly in Africa), leveraging off the devaluation of the South African rand. Companies in the auto, boatbuilding, locomotives, plastics and other beneficiation sectors have shown great potential for growth and job creation in the manufacturing sector. This will be elaborated in subsequent sections of this SSP document.

1.3 ECONOMIC PERFORMANCE

The South African economy experienced sluggish growth at best with current statistic reflecting the lowest growth since the 2009 recession. The GDP contracted by 0.7% in the first quarter of 2017 following a 0.3% contraction in the fourth quarter of 2016, sending South Africa into a technical recession (see figure below). The sluggish growth is a direct and indirect result of global, local, social, political and economic developments that affected the economic outlook. The weakening of the Rand, global economic outlook as well as policy and political uncertainty have not boded well for South Africa. Recent Cabinet reshuffles, allegations of state capture and the recently promulgated Mining Charter as well as the

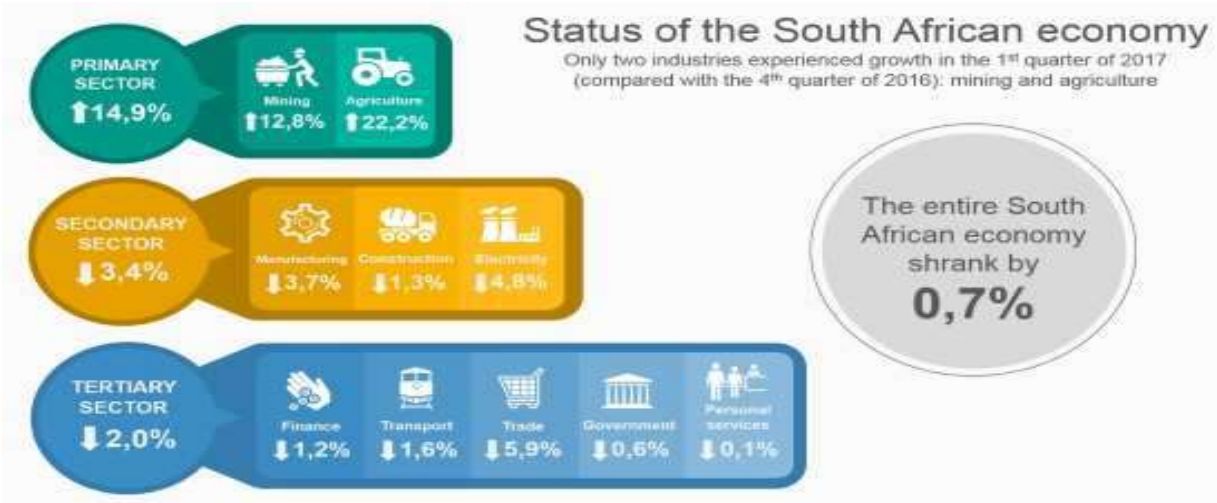
debacle with respect to the mandate of the Reserve Bank, are some of the challenges pulling the South African economy into further uncertainty.

Figure 2: Manufacturing Contribution to GDP (calculations based on Stats SA Data, 2017)



Manufacturing contribution to GDP continues to gradually decline year on year with a reduction of 0.6% since the third quarter of 2016 which saw contribution at its highest point of 12.3%. Compared to other sectors, manufacturing is not faring well contracting by 3.7% as shown in the figure below. Only the mining and agricultural sectors experienced growth.

Figure 3: Status of the SA Economic Sectors in the First Quarter of 2017 (Stats SA)



Policy uncertainty has tended to play an ever increasing role in terms of the economy as highlighted through North-West University's (NWU) Policy Uncertainty Index (PUI), which indicates an urgent need for South Africa to get the politics right in order to increase growth (Grocotts, 2017; Engineering News, 2017). Although policy uncertainly is a new norm for South Africa, business strategies can be adapted to accommodate the situation through learning to adapt to policy environment 'shocks' (Grocotts, 2017). Policy uncertainty increased in the country after recent cabinet reshuffles. During this period, the proportion of manufacturers who indicated that politics is a constraint on doing business in South Africa, increased from 76% to 87% (Grocotts, 2017). Adding to this gloomy economic outlook, was the Public Protector's recommendations to replace the mandate of the South African Reserve Bank (SARB) to emphasise a transformation-led agenda (Grocotts, 2017; Engineering News, 2017). These political occurrences have left the South African economy

on shaky grounds with little indication of recovery in the near future. South Africa plunged into a technical recession after two quarters of negative growth of the GDP. Further pessimism resulted with Moody's sovereign risk credit rating now sitting only one notch above junk status. Standard and Poor and Fitch downgraded South Africa to junk status in April 2017.

Overall, the broader manufacturing sector incorporating the merSETA sub-sectors as well as other sub-sectors, expanded by R32 billion to R517 billion representing 13% of the GDP (Statistics South Africa, 2017a). Increases in production, sales and export earnings in some sub-sectors are some of the factors that contributed to the growth. The manufacturing sector remains one of the significant contributors of employment, employing an estimated 1 727 000 people. The sector however continues to shed jobs due to de-industrialisation and jobless economic growth. For example, between December 2015 and December 2017, the manufacturing sector shed 11 000 jobs (Statistics South Africa, 2017b). Jobless economic growth is defined by the World Economic Forum (2017) as "the phenomenon in which economies exiting recessions demonstrate economic growth while merely maintaining – or, in some cases, decreasing – their level of employment". Globally, the economic slowdown in China and the profound policy uncertainty emerging in the not only in the U.S. after the Trump administration took power, but also in the U.K. as a result of Brexit is projected to have a significant impact on economic prospects for the 2017/18 financial year (DTI, 2016). Economic slowdown in the African continent, South Africa's major export destination is also set to have a significant impact in the economy, evident by the decrease in vehicle export sales volumes to African markets in 2016.

1.3.1 Manufacturing Production and Sales

Manufacturing production is one of the key indicators of the economic performance of the sector. Manufacturing production also experienced a sluggish increase in line with the GDP by 0,3% in March 2017 compared with a 4% increase experienced in the same period in 2016. This slight increase was mainly due to higher production in the following sub-sectors, some of which form part of the merSETA sub-sectors.

- Basic iron and steel, non-ferrous metal products, metal products and machinery (6,0% and contributing 1,1 percentage points).
- Motor vehicles, parts and accessories and other transport equipment (5,8% and contributing 0,4 of a percentage point).

Negative growth was experienced in petroleum, chemical products, rubber and plastic products (-5,3% and contributing -1,3 percentage points) (Statistics South Africa, 2016c). This had a negative bearing on the overall manufacturing production. In the next sub-sections we explore the economic performance of each sub-sector that belongs to the merSETA scope of coverage.

In the figures below, we highlight the sales in each of the merSETA subsectors. Sales are one of the key indicators of the size of the sector. The metals sub-sector, followed by the motor and auto sub-sectors still remain the biggest sub-sectors; plastics and new tyre sub-sectors are the smallest in the merSETA's scope of coverage. Sales growth on the other hand is a key indicator of economic performance. In considering sales growth, we highlight the growth in sales (Rands) of products produced by the merSETA sub-sectors in the last 10 years (2007-2017) with 2007 as the base year. The data indicates that the metals and engineering sector, which is one of the biggest sub-sectors in terms of size and sales volumes has stagnated in growth. The plastics sub-sector (the smallest sub-sector), has experienced significant growth in sales due to the growth in demand for plastics products in

various sectors where plastics has become a cheaper alternative for metal and other products inter alia. The automotive industry growth in sales compared to other sub-sectors has remained lower in the past 10 years. This can be attributed to harsh economic conditions which have affected consumer spending domestically. This however does tend to have an upward projection and seems to be applicable to all sectors except metal which seems to have experienced contraction in the first quarter of 2017.

Figure 4: merSETA Sector Sales 2006 - 2017 (calculations based on Stats SA data, 2017)

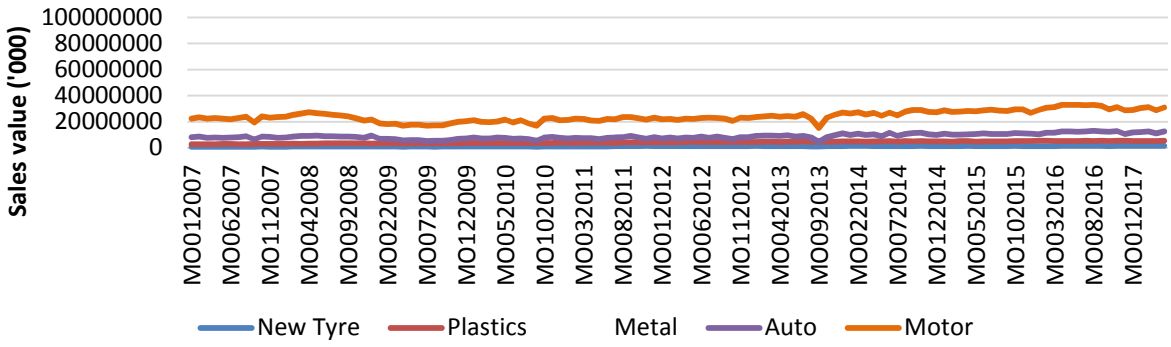
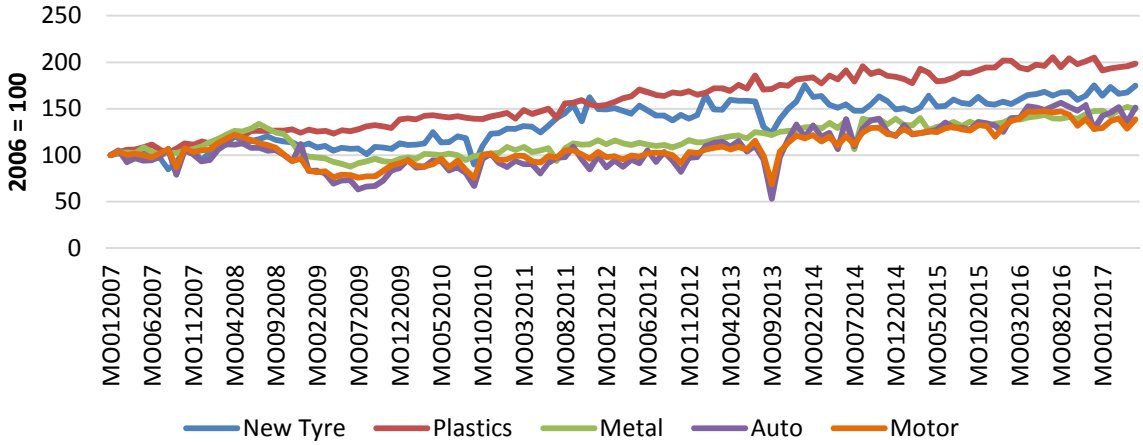


Figure 5: merSETA Sector Sales Growth 2006 – 2017 (calculations based on Stats SA data, 2017)



1.3.1.1 Automotive Sector

South Africa's automotive sector (incorporating original equipment manufacturing, vehicle assembling, components manufacturing and motor retail), has been resilient against adverse economic conditions due to the high level of integration with domestic component suppliers, a stable policy framework and export diversification (Automotive Industry Export Council, 2016). The automotive industry is the biggest contributor to manufacturing output and is one of the most dynamic parts of the segment. In 2015, the broader automotive industry, through its well-integrated value chain from downstream to upstream activities, contributed 7,5% to the country's GDP. The vehicle and automotive component manufacturing industries contributed 33,5% to the country's total manufacturing output, while automotive export comprised 14, 6% of South Africa's total export earnings (Automotive Industry Export Council, 2016).

The sector, despite being resilient has not been spared by the prevailing negative economic outlook. Domestic sales remained weak, serving to confirm the ongoing difficult economic conditions. For the third year in succession, new vehicle sales during 2016 in South Africa recorded a year-on-year decline. New vehicle sales for 2016, in aggregate terms, declined by 11.4% compared to calendar 2015 (NAAMSA, 2017). According to a report by Wesbank

(2017), the South African new vehicle market immediately felt the repercussions of the country's economic downgrade in April 2017. Total sales plummeted 13.4%, with only 34 956 new vehicles sold. This was recorded as the lowest sales performance since December 2009, when the country was in a recession.

In May 2017, General Motors (GM) announced that it was withdrawing its operation in South Africa at the end of 2017 as part of its restructuring in a number of different markets to drive stronger global performance. In communicating the rationale behind the disinvestment, GM noted that "Globally, GM firmly believes there are opportunities where it can achieve greater return on investment – in specific vehicle segments and markets where the outlook for growth is very strong" (business adjacencies, SUVs and crossovers, U.S. and China). This is worrying and is a blow in fighting de-industrialisation that has seen manufacturing plants closing down or scaling down their operations. GM has since announced its intention to retrench about 600 employees out of its 1500 employees. The specifics around jobs that will be affected are yet to be seen as the business transition is aimed for the end of 2017.This move has been criticized by Labour unions such as NUMSA with the majority of workers at GM being NUMSA members.

According to NUMSA, there was no consultation with the union and thus they are concerned that the loss of jobs was imminent in an economy struggling with a high unemployment rate. According to Statistics South Africa (2017), the unemployment rate has increased to 27,7%, which is the highest unemployment rate since 2003. Government, through the Department of Trade and Industry is in the process of exploring the possibility that a new investor takes over the part of the General Motors facility not sold to IZUZU to produce other vehicles, possibly in another market segment or as a contract manager. The outcomes of these negotiations are crucial in determining the course of action. The Minister of Trade and Industry, Rob Davies also expressed confidence that recent announced investments in COEGA (an Industrial Development Zone), should save jobs in automotive production in the Nelson Mandela Bay Metropolitan area. The anticipated investments and localisation by the remaining vehicle producers should have a positive effect going forward.

The merSETA has recognised the impact of the current economic climate and is making efforts to seek opportunities through skills development to assist retrenched workers. The merSETA is in the process of investigating the feasibility of implementing a project around the retrenchment of workers at General Motors. One of the flagship projects being conceptualised includes conducting a skills audit of the affected workers to determine their skills levels, qualifications, experience, occupational categories etc. This is critical in assisting the merSETA in determining the interventions required for the affected workers. These interventions may range from re-skilling to training aimed at increasing the employability of affected workers through promoting entrepreneurship etc. The merSETA is also committed through partnerships and other mechanisms to work with all relevant stakeholders in addressing some of the challenges confronting the sector.

The vehicle export sales remained strong despite the prevailing local and global economic conditions. New vehicle exports for 2016 reached 344 859 units which is an improvement of 3.3% when compared to the total number of vehicles exported in 2015 which came to 333 847 units. According to NAAMSA data, significant gains were recorded in Asia, increasing by 38.8% and Europe, increasing by 12, 6%; significant declines were experienced in the African and South American markets with the African market decreasing by 48,9% and South America decreasing by 27.5% respectively. The decline is as result of a combination of

factors that include ad-hoc duty increases in Nigeria and Zimbabwe, regulatory restrictions in Algeria and continued weak economic conditions in most African countries (NAAMSA, 2017).

Continued investment in the automotive sector despite the prevailing economic conditions is a sign that investors still have confidence in South Africa as an investment destination. Significant examples of huge investments include the Beijing Automobile International Corporations which made a R11 billion investment in a vehicle manufacturing plant in COEGA. Toyota South Africa opened a R6.1billion assembly line to produce the Fortuner and Hilux models while BMW also invested R6 billion in its Rosslyn plant to gear up for the X3 model production.

1.3.1.2 Motor Sector

The local motor industry remained an important player in terms of exports from South Africa of built-up vehicles, automotive components and replacement parts which was good news for the overall health of the industry. Automotive exports had grown 80.3% between 2012 and 2016, while the rate of imports was slower with an increase of 48.7%. This resulted in a significant drop in the motor industry's trade deficit over the past five years, going from R42.3-billion in 2012 to R32.9-billion in 2016 (RMI, 2017).

1.3.1.3 Plastics Sector

The plastics sector contributes approximately 1.6% to South Africa's GDP and 14.2% to the manufacturing sector and has been defined as a priority sector by government (Plastics SA, 2016). The increase in the use of plastic products across all sectors including the manufacturing sector presents an opportunity for the growth of the sector. For example, according to German based mechanical engineering company Haag+Zeissler "the automotive industry is planning to increase the present plastic content in electric vehicles by around 25% to enable a necessary saving in vehicle weight" (Engineering News, 2017). This coupled with an increased demand and use of products containing plastics as well as an increased demand for plastic applications by South Africa's growing middle-class, has a positive impact on the industry (Plastics SA, 2016). Of the 1.4 million tons of plastics that entered the market during 2015/2016, approximately 55% of all polymers went into packaging; of this a total of 29% was used in rigid packaging and 26% for flexible packaging. The third largest application of plastics in South Africa is in the building and construction industry (15%), followed by electronic appliances (6%), automotive and transport industries (5%), engineering (5%), agriculture (4%) and houseware (3%).

1.3.1.4 Metals Sector

The metals sector remains the biggest sub-sector in the manufacturing sector and contributes approximately 29% to the manufacturing GDP. The sector is currently undergoing a deep structural adjustment, partly attributable to recent economic headwinds as well as historic developments (SEISFA, 2017). Between 2010 and 2015, steel production for example declined by 15%. In dollar terms, steel exports fell by 32% from 2010 to 2015 (TIPS, 2016). Despite the decline, government remains committed to the steel industry which is identified as of strategic importance to the economy. Speaking to the Portfolio Committee on Trade and Industry in June 2016, the Minister of Trade and Industry argued that "global plant utilisation was expected to stay below 80% for the next few years as a result of the oversupply of steel and massive installed capacity in China" (Engineering News,

2016a). In the 2017 national budget, R95-million was committed towards the establishment of a Steel Development Fund (National Treasury, 2017).

1.3.1.5 New Tyre Sector

The new tyre industry in South Africa benefits from South Africa's well developed automotive sector. According to data from SATMC, in 2015 11 million new tyres were sold locally, accounting for 61% of sales (SATMC, 2017). Recent economic challenges that have not spared the automotive sector are thus likely going to affect the new tyre sector due to its dependence on the automotive sector. The new tyre industry also continues to face stiff global competition from importers of tyres, with about half shipped in from the far east. Further challenges have included the sale of unsafe second-hand tyres to the public and the unregulated importation of such tyres (Engineering News, 2016b).

1.4 EMPLOYER PROFILE

In the first quarter of the 2017/2018 financial year, merSETA analysed WSP data of 4434 companies (4734 if counting company regional offices separately). In terms of the size of companies in the merSETA sector, most are small and medium, when combined only employ 31% of all employees whilst large companies account for 69% of employment.

Table 4: merSETA Companies by Size

Company Size	No. Companies	% Share Companies	Employment	% Share Employment
Large	639	14%	370388	69%
medium	1170	26%	101592	19%
small	2625	59%	67174	12%
Grand Total	**4434**	**100%**	**539154**	**100%**

Of all the merSETA sectors (barring the unknown chamber – this is reflected in the data where a company has not provided a SIC code), the plastics sector shows the greatest share of employment among small and medium enterprises, comprising 39% of total employment in that sector. All other sectors' small and medium enterprises account for less than 37% of total employment for their respective sectors as seen in table 5 below.

Table 5: merSETA Companies by Size and Chamber

Chamber	Company Size	No. Companies	%	Employees	%
Auto	large	10	71%	20240	99%
	medium	3	21%	182	1%
	small	1	7%	35	0%
Auto Total		**14**	**0.3%**	**20457**	**3.8%**
Metal	large	351	15%	206761	70%
	medium	632	28%	54833	19%
	small	1299	57%	33046	11%
Metal Total		**2282**	**51.5%**	**294640**	**54.6%**
Motor	large	166	11%	99480	64%
	medium	357	24%	30397	20%
	small	969	65%	24984	16%
Motor Total		**1492**	**33.6%**	**154861**	**28.7%**
New Tyre	large	7	54%	7010	96%
	medium	1	8%	133	2%
	small	5	38%	136	2%
New Tyre Total		**13**	**0.3%**	**7279**	**1.4%**
Plastics	large	100	18%	35145	61%
	medium	168	30%	15205	26%
	small	287	52%	7610	13%

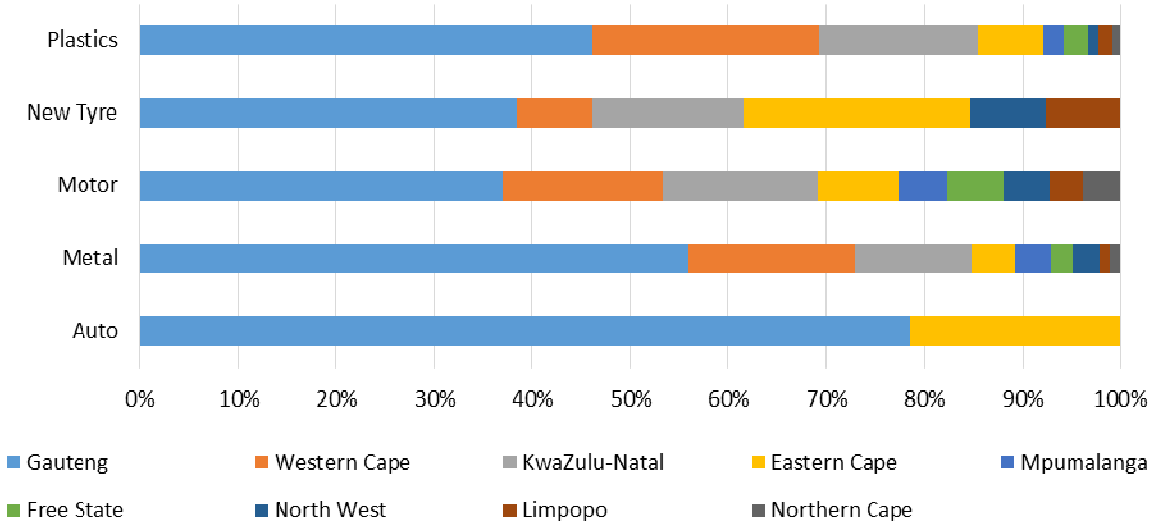
Plastics Total		**555**	**12.5%**	**57960**	**10.8%**
	large	5	6%	1752	44%
	medium	9	12%	842	21%
Unknown	small	64	82%	1363	34%
Unknown Total		**78**	**1.8%**	**3957**	**0.7%**
Grand Total		**4434**	**100%**	**539154**	**100%**

Despite the small share of employment among small and medium enterprises, the government has prioritised entrepreneurship and the advancement of Small, Medium and Micro-sized Enterprises (SMMEs) as the catalyst to achieving economic growth and development (DTI, 2015).

1.4.1 Provincial Distribution of merSETA Companies

In terms of the provincial distribution of the companies within merSETA's five Chambers as seen in figure 6, most are concentrated in Gauteng, the Western Cape, KwaZulu-Natal and the Eastern Cape. The metal sector also has a footprint in the Northern Cape and Mpumalanga. The motor sector shows a footprint in all other provinces as do the other sectors, but to a lesser degree.

Figure 6: merSETA Companies by Chamber and Province (merSETA WSP, 2016)



1.5 LABOUR MARKET PROFILE

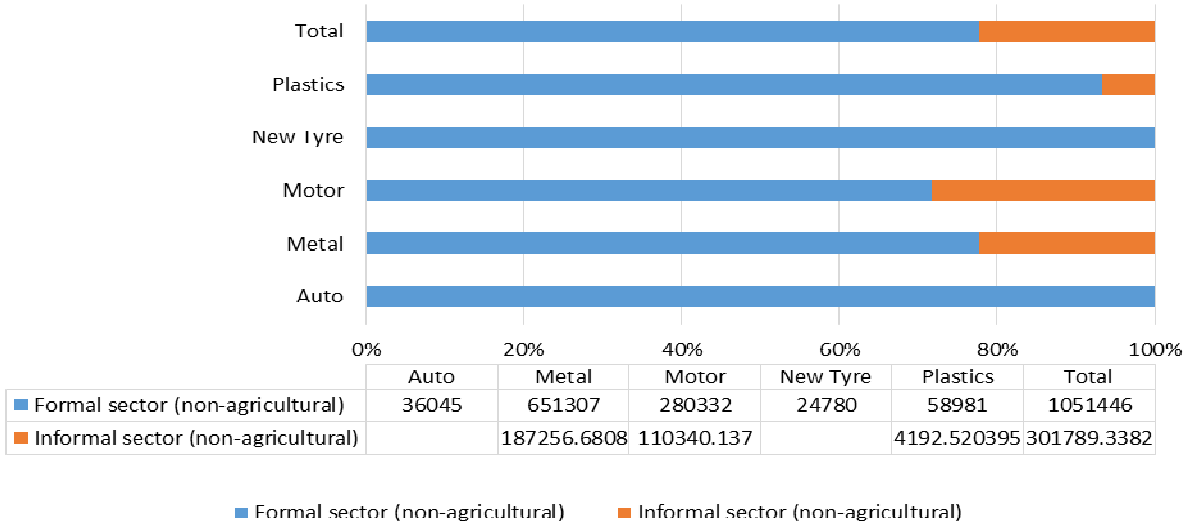
Data submitted to the merSETA in WSPs by 4434 companies represents the majority of employees in the sector. In total, the WSP data (un-weighted) represents 539 154 employees, slightly less than 541 928 employees represented in 2016. Statistics South Africa postulates that the total manufacturing sector comprises 1.7 million employees, based on un-weighted data. merSETA WSP accounts for 32% of all workers in the manufacturing sector. According to the 2016 Quarterly Labour Force Survey Q4 (QLFS), the manufacturing sectors shed 11 000 more jobs since quarter four of 2015.

The manufacturing sector (under the merSETA scope of coverage), provided employment for about 1.35 million people (both formal and informal) or 7.5% of the total employed population (this proportion has decreased since last year indicating that gains in employment in other sectors outweigh those in the mer-sectors). The largest employment is within the metals sector, employing 62% of all mer-sector employees, the motor sector

accounts for 29% employment, plastics and rubber products represents 7% of employees, and auto 3% (merSETA calculations, Stats SA QLFS, 2015).

In terms of the formal and informal employment, split within the merSETA scope of coverage, overall 78% are formally employed with 22% employed informally (merSETA calculations, Stats SA QLFS, 2015). Formal employment decreased by 6% since 2016, meaning a greater proportion of workers are now in the informal sector. Figure 7 below shows that across all sectors, most employees are in formal employment, with the motor sector representing the largest proportion of informal workers (28%). This is followed by the metal sector which represents about 22% informal workers. There were no data on any informal workers in the auto and new tyre sectors.

Figure 7: Formal and Informal Employment (merSETA calculations; Stats SA, 2016q4)



	Auto	Metal	Motor	New Tyre	Plastics	Total
Formal sector (non-agricultural)	36045	651307	280332	24780	58981	1051446
Informal sector (non-agricultural)		187256.6808	110340.137		4192.520395	301789.3382

1.5.1 Provincial Distribution of Employees

The geographical distribution of employees is likely to follow the geographical distribution of the sector as a whole, with employment concentrated in Gauteng, but with nodes of higher-level employment the Western Cape, Eastern Cape and KwaZulu-Natal. When considering the more rural regions, there are higher concentrations of employment in the motor retail, motor service and repairs, and metal fabrication subsectors than in the other merSETA subsectors. Table 6 below reflects this scenario.

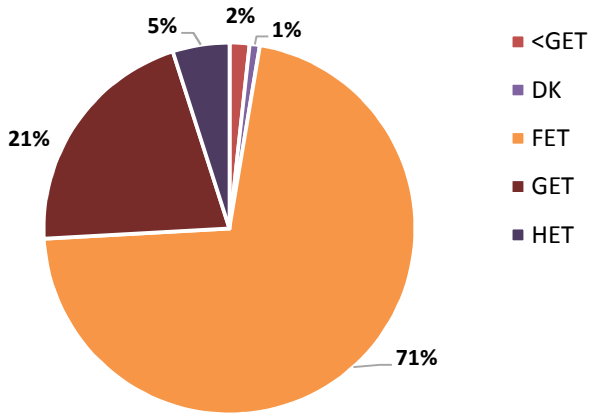
Table 6: merSETA Provincial Distribution of Employees (WSP data, 2017)

Province	Total Employed	Total Employed %
Gauteng	305572	57%
KwaZulu-Natal	82450	15%
Western Cape	62314	12%
Eastern Cape	42701	8%
Mpumalanga	15378	3%
North West	10358	2%
Free State	9074	2%
Limpopo	7324	1%
Northern Cape	3983	1%
Grand Total	**539154**	100%

1.5.2 Educational Profile

There is no detailed information available on the skills levels of employees from merSETA data. However, the QLFS Q4 2016 data from STATS SA were utilised to establish a proxy measure for educational levels of merSETA sector employees. According to 2016 Q4 QLFS data (see figure 8 and table 7), the majority of employees have an NQF level 4 (45%), but overall, 90% of employees have FET band qualifications with less than 5% having qualifications higher than FET level.

Figure 8: Highest Level of Education Attained by merSETA Employees (merSETA calculations, Stats SA, 2016)



The data also shows that women tend to be less represented above NQF 4, however from the data it would seem that women who progress beyond NQF 4 predominately attain NQF 7 and above, surpassing the proportion of men with the same level of education (Table 7).

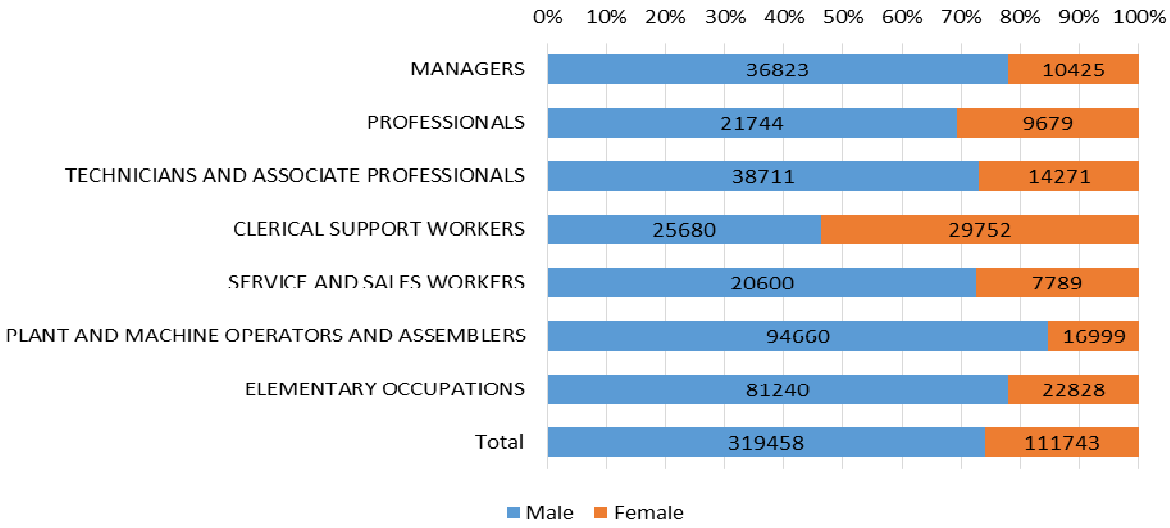
Table 7: Educational Levels of Employees in merSETA Scope of Coverage (merSETA calculations, Stats SA, 2016)

NQF Level	GENDER				Total	
	Male		Female			
less than level 1	17757	2%	2664	1%	8668	2%
NQF 1	127228	11%	7218	4%	175002	10%
NQF 2	119088	10%	10921	5%	167270	10%
NQF 3	324349	28%	40852	20%	176573	27%
NQF 4	492429	43%	119076	58%	603576	45%
NQF 5	6382	1%	0	0%	12489	0%
NQF 6	11980	1%	3933	2%	10679	1%
NQF 7	14348	1%	10208	5%	45549	2%
NQF 8	6814	1%	3150	2%	7643	1%
NQF 9	15459	1%	6714	3%	16913	2%
DK	12206	1%	457	0%	5849	1%
Total	**1148041**		**205194**		**1353235**	

1.5.3 Race and Gender Distribution of Employees

Race and gender are important indicators of transformation in the sector. merSETA's sectors are male dominated with 78% males and 22% females representing the gender profile of the sector. As can be seen in figure 9 below, the group of clerical support workers is the only occupational category in which women dominate. For the other major occupational categories, the proportion of male employees is greater among professionals, sales workers and technicians. The proportion of female workers in managerial positions remains relatively low at just over 20%.

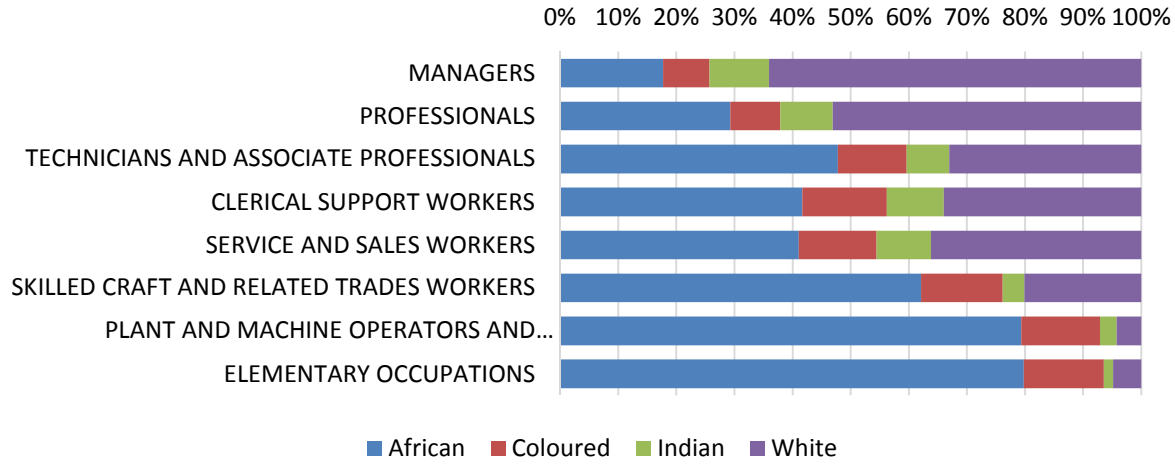
Figure 9: Gender Distribution of Employees in the Sector According to Occupational Groups (merSETA WSP data, 2017)



In terms of race, the sector does not reflect the demographics of the country. A total of 58% of merSETA employees are African and almost a quarter (23%) are White. Indians constitute 3%, while Coloureds constitute 9%. The sector thus demonstrates overrepresentation of White people based on the South African racial profile - in the context that white people represent only 8% of the population. Africans are underrepresented in the context that 80% of the total population is African.

The data as reflected in figure 10 below, also reveals that transformation in the sector has not been progressive with previously disadvantaged racial groups still occupying lower occupational categories. White employees form the largest racial group in the occupational categories of managers (66%, 67% in 2012 which shows little transformation) and professionals (53%, 57% in 2012 which shows only marginal improvement with respect to transformation). African employees make up the majority of workers for technician and associate professionals (47%), service and sales workers (40%) and clerical support workers (40%). It is important that these indicators be tracked for changes over time. As merSETA's data collection systems become more embedded, more detailed monitoring of transformation will become possible.

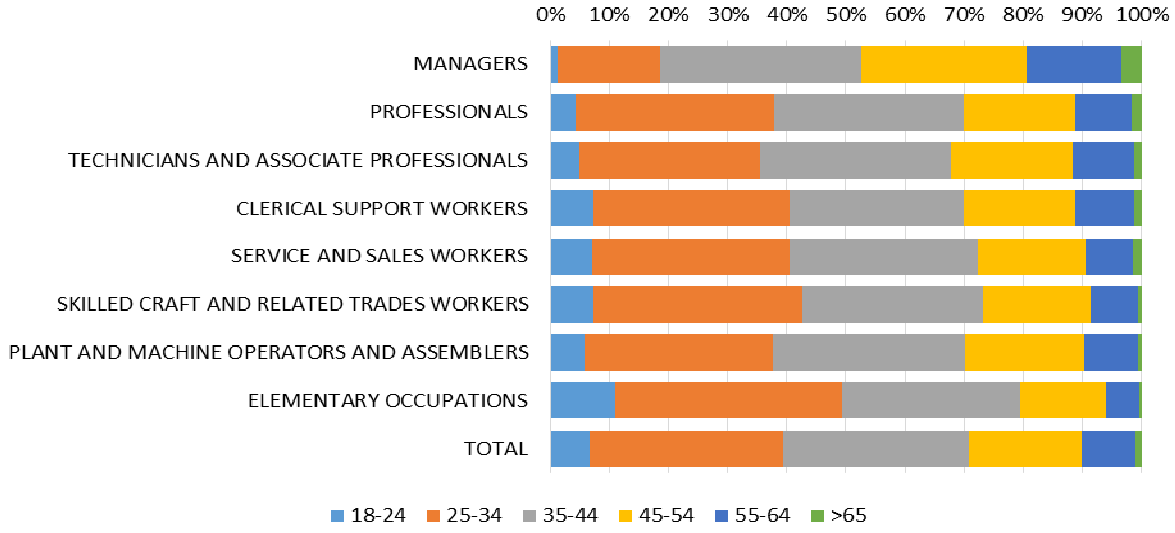
Figure 10: Racial Distribution of Employees (merSETA WSP, 2017)



1.5.4 Age Distribution of Employees

merSETA is a youthful sector; in 2017, around 40% of all employees were younger than 35 years and only 10% were older than 55 (Figure 11). However, the 2017 data indicates fewer number of youth in the sector and a slight decline in employees overall. Elementary occupations have a relatively large proportion of workers younger than 35 years (51%). This group is to a larger extent composed of semi-skilled people with basic entry level qualifications (grade 12). The highest proportion of those aged over 35, are at managerial or professional level. This is due to the positive correlation between age, skill and experience.

Figure 11: Age Distribution of Employees (merSETA WSP, 2017)



1.5.5 Disability

According to merSETA WSP data, merSETA organisations employ approximately 4626 people with disabilities, 10% more than was reported in 2016 (4196) (un-weighted data).

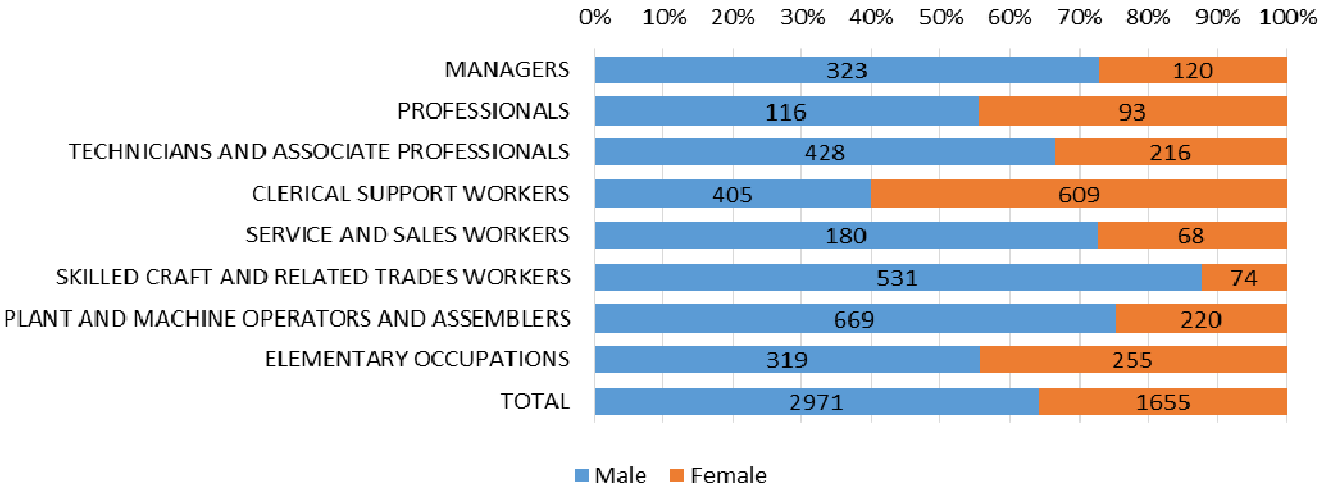
People with disabilities tend to be employed as clerical workers (22%), machine operators (19%) and technicians (14%). The metal and motor industries employ more disabled workers than other sectors. This could be attributed to the higher number of large companies with higher numbers of positions (different work tasks) available for the disabled.

Table 8: Employees with Disabilities by Occupational Group and Chamber

Occupational Group	Auto	Metal	Motor	New Tyre	Plastics	Un-known	Grand Total
Managers	32	210	150	5	42	4	443
	7%	47%	34%	1%	9%	1%	**10%**
Professionals	38	110	42	1	17	1	209
	18%	53%	20%	0%	8%	0%	**5%**
Technicians And Associate Professionals	128	228	121	8	33	126	644
	20%	35%	19%	1%	5%	20%	**14%**
Clerical Support Workers	112	437	386	3	73	3	1014
	11%	43%	38%	0%	7%	0%	**22%**
Service And Sales Workers	3	60	172	2	10	1	248
	1%	24%	69%	1%	4%	0%	**5%**
Skilled Craft And Related Trades Workers	30	346	200	4	22	3	605
	5%	57%	33%	1%	4%	0%	**13%**
Plant And Machine Operators And Assemblers	143	298	315	35	95	3	889
	16%	34%	35%	4%	11%	0%	**19%**
Elementary Occupations	12	248	235	5	66	8	574
	2%	43%	41%	1%	11%	1%	**12%**
TOTALS	**498**	**1937**	**1621**	**63**	**358**	**149**	**4626**
	11%	**42%**	**35%**	**1%**	**8%**	**3%**	**100%**

More males with disability are employed in the sector, however the proportion of females with disabilities is higher (35%) than that of able bodied workers. These women tend to be employed in clerical positions (60%). The majority of males with disability are artisans (craft and related trades workers) as seen in the figure below.

Figure 12: Occupational Categories and Gender of Employees with Disabilities (merSETA, WSP data, 2017)



1.5.6 Workforce by Occupational Category and Chamber

Overall, the manufacturing, engineering and related services sector comprises a majority of semi-skilled and skilled workers[1]. One in every 5 workers is skilled across all chambers and a quarter is employed at technician level or higher as demonstrated in table 9 below.

Table 9: Occupational Categories of employees by Chamber (merSETA, WSP data, 2017)

Employment Categories	Chambers					
	Auto	Metal	Motor	Plastics	New Tyre	Total
MANAGERS	8%	8%	11%	7%	8%	11%
PROFESSIONALS	12%	6%	4%	4%	4%	15%
TECHNICIANS AND ASSOCIATE PROFESSIONALS	20%	11%	7%	8%	9%	18%
CLERICAL SUPPORT WORKERS	8%	9%	14%	6%	8%	12%
SERVICE AND SALES WORKERS	2%	3%	11%	2%	4%	2%
SKILLED CRAFT AND TRADES	18%	24%	17%	7%	12%	23%
PLANT & MACHINE OPERATORS AND ASSEMBLERS	29%	19%	18%	63%	29%	9%
ELEMENTARY OCCUPATIONS	3%	20%	18%	2%	26%	10%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

The majority of employees in the mer-sector are trades workers, however the plastics and new tyre chambers have more operators and elementary workers. Informal consultations with sector representatives indicate that the requirements for manufacturing of tyres does not require a high level of skill and that the majority of workers can be trained very quickly in this respect. With reference to the plastics sub-sector, a major problem exists with qualifications tailored specifically for the sector. In addition, the sector is currently consulting with the administrators of the OFO to change a level 7 (operator) occupation to a level 6 (trade) occupation; plastics machine setter. In the trades currently offered, none are really geared towards plastics processing as most of the subject matter covered in the trades

[1] Skilled workers refer to managers, professionals, technicians, clerical and sales workers. Semi-skilled workers refers to craft and trader workers and operators. Low skilled workers refer to elementary occupations and domestic work (STATSSA)

relate to the larger engineering sectors and not plastics. Finding people with plastics processing knowledge is not easy as the only way to get this is from experience. Actual occupations related to the occupational categories are presented in the table below.

Table 10: Top Ten Occupations Based on Employment

Top 10 Occupations for each Occupational Group			
MANAGERS	Production / Operations Manager (Manufacturing)	SERVICE AND SALES WORKERS	Motorised Vehicle or Caravan Salesperson
	Director (Enterprise / Organisation)		Automotive Parts Salesperson
	Sales Manager		Sales Assistant (General)
	Finance Manager		Sales Clerk / Officer
	Corporate General Manager		Special Forces Operator
	Quality Systems Manager		Service Station Attendant
	Supply and Distribution Manager		Office Cashier
	Customer Service Manager		Security Officer
	Sales and Marketing Manager		Checkout Operator
	Business Training Manager		Caretaker
PROFESSIONALS	Sales Representative / Salesman (Industrial Products)	SKILLED CRAFT AND RELATED TRADES WORKERS	Metal Machinist
	Marketing Practitioner		Welder
	Industrial Engineer		Automotive Motor Mechanic
	Mechanical Engineer		Boiler Maker
	Safety, Health, Environment and Quality (SHE&Q) Practitioner		Mechanical Fitter
	Financial Accountant		Electrician
	Human Resource Advisor		Sheet Metal Worker
	Electrical Engineer		Diesel Mechanic
	Civil Engineer		Quality Controller (Manufacturing)
	Occupational Instructor / Trainer		Rigger
TECHNICIANS AND ASSOCIATE PROFESSIONALS	Production / Operations Supervisor (Manufacturing)	PLANT AND MACHINE OPERATORS AND ASSEMBLERS	Engineering Production Systems Worker
	Integrated Manufacturing Line Process Control Technician		Product Assembler
	Metal Manufacturing Process Control Technician		Delivery Driver
	Mechanical Engineering Technician		Metal Processing Plant Operator
	Draughtsperson		Rubber Production Machine Operator
	Purchasing Officer		Truck Driver (General)
	Office Administrator		Forklift Driver
	Credit or Loans Officer		Plastics Production Machine Operator (General)
	Personal Assistant		Machinery Assembler
	Manufacturing Technician		Crane or Hoist Operator
CLERICAL SUPPORT WORKERS	General Clerk	ELEMENTARY OCCUPATIONS	Store Person
	Production Coordinator		Metal Engineering Process Worker
	Stock Clerk / Officer		Plastics, Composites and Rubber Factory Worker
	Program or Project Administrators		Commercial Cleaner
	Accounts Clerk		Handyperson
	Dispatching and Receiving Clerk / Officer		Mechanic's Assistant
	Enquiry Clerk		Component Fitter
	Cost Clerk		Builder's Worker
	Receptionist (General)		Food and Beverage Factory Worker
	Payroll Clerk		Shelf Filler

The table demonstrates that within management, occupations require some generic skills which apply across various sectors. However, the demand for skills in this segment often require experience related to the sector itself, contributing to the difficulty to fill positions at this level. Clerical workers also show very generic skills sets, but still requires high level skills in line with the requirements of knowledge based office work. Other occupational categories demonstrate requirements specific to the sector in line with vocational training and the trades.

1.6 CONCLUSION

This chapter has provided an overview of the merSETA labour market profile and economic performance of the sector. The chapter described organisations within the sector and the sector's employment profile. Factors affecting the performance of the sector such as the domestic and global economic environment, technology changes and labour market dynamics were also highlighted.

The weak economic performance experienced by the sector is negatively affecting employment. The contraction of the sector has resulted in the sector shedding jobs, especially affecting unskilled workers. According to key findings from the sector research, to grow and survive in the face of harsh economic conditions and competition, industry needs to continue to invest in automation to cut down labour and other costs of production. This creates opportunities for highly skilled people to drive the automated processes. Findings from the 2015 motor chamber research also highlighted the need to increase the number of highly skilled people in the sector to increase productivity which is essential for the competitiveness, growth and survival of the sector (merSETA, 2015). This means that overall, merSETA should support the development of high level skills, however it cannot ignore the needs of those who have lost jobs in the current climate and possess lower level skills.

This places emphasis on the need for the merSETA to facilitate the development of unskilled and semi-skilled workers who have already lost their jobs or risk losing their jobs due to mechanisation. This is important in a sector like merSETA which is semi-skilled intensive. Chapter two will highlight some of the initiatives the merSETA has put in place as a response to the decline of the sector, retrenchments and layoffs; in addition the merSETA is in the process of investigating the feasibility of implementing a project around the retrenchment of workers at General Motors.

The profile of the sector should be used to understand the status quo in terms of skills and ensure that the pipeline of skills be examined in light of challenges highlighted to put in place mechanisms for demand led skills interventions, while fostering lifelong learning and development of the current workforce. The statistics on demographics, disability and regionality should be used to push the transformation agenda more strongly while also promoting localised economic development to enable workers to access livelihoods in their own communities. The subsequent chapter will demonstrate drivers for the economy and how these impact on skills. It will further unpack key national imperatives to support worker and community development that could be leveraged to support areas of economic growth.

2 KEY SKILLS ISSUES

This chapter identifies factors that are driving change in the sector and influencing skills demand and supply either positively or negatively. The chapter will identify and analyse skills issues such as technological innovation, global and economic environment, and government policies and strategies that influence considerations of skills supply and demand in the merSETA sectors.

2.1 CHANGE DRIVERS

Factors affecting Skills Demand and Supply in the merSETA include the following:

2.1.1 Blue Economy/Ocean Economy

The shift towards the oceans or blue economy through Operation Phakisa, implemented by the Presidency in 2014, marks a shift in skills demand and is therefore identified as a change driver. Operation Phakisa is based on "Big Fast Results" methodology adopted from the Malaysian Government in an attempt to better utilise South Africa's ocean resources for economic development. It is said that oceans have the potential to contribute up to 177 billion rand to the Gross Domestic Product (GDP) and create just over one million jobs by 2033 (DTI, 2016; MTM, 2015; Vision 2030, 2015).

The four critical areas focused on under Operation Phakisa include marine transport and manufacturing, offshore oil and gas exploration, aquaculture as well as marine protection services and ocean governance; the focus on marine transport manufacturing has the opportunity to deepen component manufacturing and rebuild domestic capabilities (DTI, 2016). Eighteen initiatives (18) have been identified across three categories, including infrastructure and operations, skills and capacity building as well as market growth to accelerate sector growth. The government has set these initial targets in the Maritime transport and manufacturing stream:

- An increase in the local manufacturing capacity through a 10 % increase in the usage of local components for boat and ship building.
- An increase in the ship repair capacity in Richards Bay, thus creating two hundred (200) direct jobs.
- To create a dedicated occupational team for the sector within the Department of Higher Education and Training to drive alignment between theoretical and workplace learning.
- Increasing the amount of minerals exported on South African ships, which will create more than four thousand direct jobs. Some of the progress made already includes the process of establishing a national shipping company and a partnership with South Korea.

The success of the ocean economy relies on the availability of relevant skills as one of the major drivers. However, some factors limiting the supply of a work-ready skills base for the industry includes inadequate artisanal and professional skills; inadequate workplace-based training; insufficient occupational-specific practical learning occurring within the college system and the classification of learners in the workplace as employees which increases the cost of placements thus, discouraging private sector participation (MTM, 2015). merSETA has a critical role to play in facilitating the development of relevant skilled individuals such as engineers, artisans and technicians in areas such as marine engineering, boatbuilding and repair, welding and underwater welding etc. to help drive the ocean economy. Curriculum design and development of new qualifications and occupations should also take into cognisance the opportunity presented by the oceans economy.

According to the World Bank (2017: 12), "realizing the full potential of the blue economy also requires the effective inclusion and active participation of all societal groups**,** especially women, young people, local communities, indigenous peoples, and marginalized or underrepresented groups". This calls for the need to support relevant community based projects that have the potential to benefit local communities in coastal areas. Training interventions in local communities in the coastal regions also need to take into account the new opportunities in the oceans economy. Career awareness and training initiatives therefore need to respond to the opportunities in the oceans economy. Partnerships with local TVET colleges and universities must also focus on leveraging the opportunities presented by the oceans economy. This is key in creating a pool of skilled people locally and readily available to take advantage of the new opportunities and thus increasing employment opportunities for local people especially the youth.

2.1.2 Green Economy

Globally, due to the depletion of natural resources resulting from human activity including manufacturing, environmental sustainability has received amplified attention. The vicious cycle created by the unemployment challenge and environmental degradation highlights the importance of building a vibrant green economy that contributes to job creation (Marks and Hidden, 2017). The World Economic Forum predicted that 462,000 additional jobs could be created in South Africa by 2025 by "going green" (World Economic Forum). Through the establishment of the National Cleaner Production Centre of South Africa (NCPC-SA) and supporting policies and legislation such as the National Waste Management, Strategy and Environmental Management Act No. 7 of 2007, the country has embraced the notion of cleaner production as a way of reducing the negative effects of manufacturing production activities on the environment. The manufacturing sector is increasingly integrating clean energy and green manufacturing techniques and thus requires green skills that contribute to sustainability (Marks and Hidden, 2017). Green skills are not only significant for the manufacturing sector, but cuts across all sectors at all levels in the workforce as emerging economic activities create new occupations, therefore an "overall greening of jobs" is necessary.

With the shift in skills demand for the green economy, comes a shift in training requirements for such skills. There is an increase in the importance of generic skills in the green economy due to the skills cutting across all sectors as well as the blurred boundaries between green and brown occupations. Currently, most skills in the manufacturing sector needs up-skilling which can be achieved through short to medium-term training, such as that from TVET colleges. Production staff require re-skilling in green production processes as well as additional future skills needed for after-sales services. Professional, managerial and technical (engineering and artisan) skills are also vital and have the potential of acting as a "bottle-neck" for the growth of green industries if not addressed (Sustain labour, 2013).

In 2012, sustainable green skills development was introduced into merSETA's Strategic Plan and programmes as a cross-cutting theme driven by notion of sustainability. merSETA companies are at various levels of development in terms of greening and green practices and processes. In 2013, a study on merSETA companies indicated that big companies have already implemented green processes in terms of energy, water, waste reduction and recycling and are at the forefront of R&D activities around green products and processes.

merSETA, through partnerships such as the GIZ-merSETA partnership and East London IDZ-merSETA partnership, has facilitated the development of various occupational and "green" qualifications for the green economy (merSETA, 2016). These were developed for Solar PV

Service Technicians, Wind Turbine Service Technicians, Automotive Machinists, Vehicle Damage Quantifiers, Automotive Electricians, Boat Builders, Rubber Production Machine Operators, Vehicle Painters, and Plastics Manufacturing Machine Minders (merSETA, 2016).

2.1.3 Advanced Manufacturing and Future Skills

The notion of manufacturing 4.0, future skills and advanced manufacturing has been the rhetoric and front of mind concepts for a couple of years. Frightening statistics are reported such as those of disruptive labour market changes, including the rise of robots and artificial intelligence resulting in job losses numbering in the millions. However, amongst all the chaos, the South African government along with research councils and higher education institutions have been investing time and energy into research to promote skills alongside technological advances, particularly in advanced manufacturing and create a substantial number of new jobs and preserve older jobs through up skilling and reskilling initiatives.

There is a preference in the sector for higher levels skills. The proportion of unskilled and semi-skilled workers in the sector has declined, driven in part by the increase in cost of labour resulting in the automation of manufacturing processes. In additionally, employees now engage with complex technologies on an ongoing basis within the workplace and thus, the baseline qualifications required across the board are increasing. This means entry levels into the wider labour market are also increasing. This is supported by the fact that the majority of OEMs now only accept individuals who have passed Grade 12 Mathematics as operators on the shop floor.

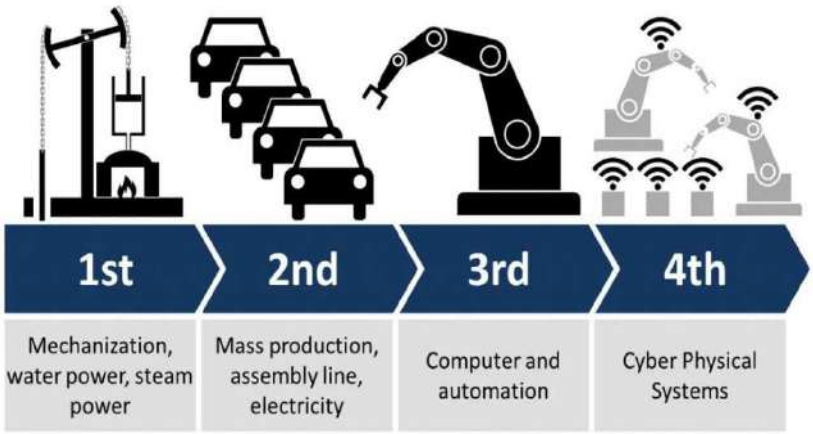
An example can be made of the auto industry which has seen hundreds of robots introduced to the shop floor. At VWSA, management undertook a skills audit to assess redundancies – of these 47 employees lacked skills needed to work in a fully automated body shop, these artisans needed additional skills to remain relevant, through the labour union negotiations, these employees were up skilled and their jobs preserved. However, this is not a sustainable practice across all companies and across variable levels of automation. Elsewhere, workers find that their skills are made redundant and they either face retrenchment or redeployment in areas where there skills can still be utilized. These realities faced by the current workforce must be taken into account to assist in job preservation and growth.

With the demand increasing for higher-level skills in science, engineering and technology, merSETA has expanded its footprint in support of Higher Education initiatives focussed on these fields of study. These initiatives range from aligning post graduate programme support to the national technology innovation programmes such as those identified in the Advanced Manufacturing Technology Strategy (AMTS), to the development of university teaching staff in STEM programmes. The AMTS is an initiative of the Department of Science and Technology and is implemented as an approach that cuts across all sectors of manufacturing through support for new skills sets, unique hard and soft technologies and efficient value chains.

According to the Department of Science and Technology, Director General Dr Phil Mjwara, South Africa has no alternative but to develop its advanced manufacturing capabilities. Advanced manufacturing, including the production of advanced materials and the use of advanced manufacturing techniques, can create alternative employment opportunities through the creation and growth of new industries and markets. Advanced manufacturing needs a highly skilled labour force and the merSETA has given support through various interventions such as policy dialogue and partnering with Universities of Technology to establish research partnerships for manufacturing skills development.

With the onset of industry 4.0, cyber-physical systems have come in to play as seen in the figure below, these systems are controlled or monitored by computer-based algorithms, tightly integrated with the internet and its users. In cyber-physical systems, physical and software components are deeply intertwined, each operating on different spatial and temporal scales, exhibiting multiple and distinct behavioural modalities, and interacting with each other in a myriad of ways that change with context. They are able to predict next steps and are autonomous in many aspects.

Figure 13: Industrial Revolutions 1st-4th (BRICS Business Council, 2017)



Globally, we are at the brink of a new era where technological advances are radically transforming the labour market across all industry sectors, especially the manufacturing sector. The manufacturing sector as a whole, traditionally has been a major source of employment, providing high-skilled and low-skilled jobs. South Africa needs to start developing the skills needed to successfully leverage the technological advances of tomorrow in conjunction with the tenets of inclusive economic growth, reduced poverty and unemployment as entrenched across national strategies and plans.

2.1.4 Adopting a training framework to meet the needs of the current and future workforce

Skills requirements for the blue and green economies, automated workplaces and advanced manufacturing call for innovation not only with respect to adapting of workers and their skills, but also of the mode of delivery for up skilling, reskilling and offering on the job training. With changes happening quite rapidly, research conducted by the Department of Science and Technology intimates that while there is a demand for higher level skills, the new era with respect to advanced manufacturing in particular lends itself to a mix of mid-level skills as higher level of skill. As such delivery of education and training should also offer a mix of methods accessible to new labour market entrants as well as the current labour force.

The South African Government has already indicated the willingness to expand learning modality especially to those who experience barriers to participation such as geographic location, lack of access to digital infrastructure, time pressures, lack of admission qualifications, lack of finances etc. The department has therefore adopted an “open learning” strategy (Government Gazette, April 2017). It adheres to the tenets laid out in the White Paper which calls for an expansion of the system and adoption of the notion of lifelong learning. Critical components however are the maintenance of rigorous quality assurance over the design of learning materials and support systems.

Future ready curricula must be developed in time to meet the demands of the future. With this in mind there is an emphasis on science, engineering and technology, increasing digital fluency and using technology to solve complex problems.

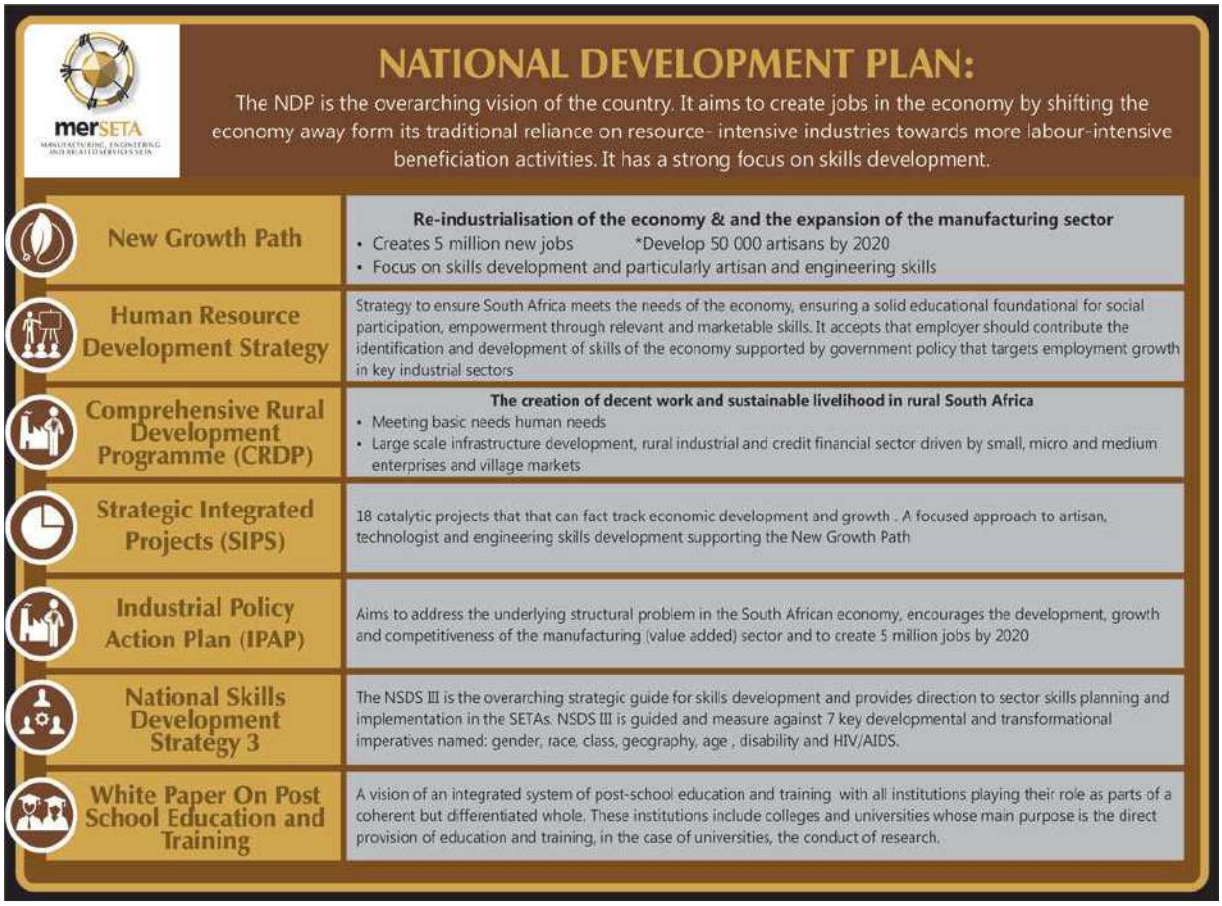
These new curricula must account for broad areas with respect to: predictive analytics, artificial intelligence, additive printing, the internet of things, nanotechnology, automation and robotics.
Professions in the future will center on the following types of jobs: registered nurses, motor manufacturing technicians, wind turbine service technicians, flexible app developers, tourism and hospitality professionals, computer programmers, artificial intelligence and robotics specialists, and cloud computing specialists.

Across the African continent, substantial potential exists for creating high-value-adding, formal-sector jobs in a number of areas, but in order to realise this potential, closer dialogue between education providers and industry is needed to align and optimise the region's demand and supply of skills. Meeting the demand for future skills will require intense collaboration, cutting red tape and expediting approval and quality assurance across the system to ensure learners are able to take up positions with adequate skills and skills sets.

2.2 ALIGNMENT WITH NATIONAL STRATEGIES

The merSETA recognises the importance of national imperatives to promote social inclusion and grow a sustainable environment in which South Africans can thrive. These national priorities are linked to many national plans and strategies, but the foundation of all our efforts starts with the National Development Plan.

Figure 14: National Strategies and Plans



The merSETA recognises the importance of national strategies in driving imperatives that are critical for the growth and development of South Africa's civil and business sectors. The National Development Plan, Human Resource Strategy, Rural Development Strategy and Strategic Infrastructure Projects (SIPs) documents all have at their core key levers to ensure continued economic growth, job creation, sustained livelihoods, social justice and access to decent living conditions through human and community development. These plans draw a focus to the following key issues that the merSETA needs to respond to through various interventions:

- ***Transformation of the national economy*** – diversifying the economy through beneficiation and localisation call for the need to invest in research and development and high end skills.
- ***Inclusive growth*** – increasing access to opportunities for people from previously disadvantaged background through up-skilling, re-skilling and skilling workers from previously disadvantaged backgrounds.
- ***Community Development*** – involvement in community development initiatives through skills interventions that respond to community development needs, opportunities and challenges.
- ***Making opportunities available to People with Disabilities (PWD)*** – increasing access to training opportunities and workplace learning for people living with disabilities
- ***Supporting the Green and Blue Economies*** – development of artisans and engineers required in the green and blue economies e.g. marine engineers to support the blue economy. This also calls for the need to embed the green agenda in new occupations or curriculum design.
- ***Supporting the informal, small and medium business sectors*** – relevant training that addresses the challenges and creates opportunities for the informal, small and medium businesses to leverage the benefits of localisation etc.
- ***Rural development*** – supporting rural development projects and creating opportunities for employment and entrepreneurship in rural areas through relevant skills interventions.

When considering the skills landscape for the merSETA sectors, the Industrial Policy Action Plan (IPAP) is arguably the key policy which addresses areas of concern. It is aimed at stimulating sustained economic growth through re-industrialisation and “learning by doing” in order to compensate for global shifts and uncertainty in an age of technology. The IPAP pays cognisance to the manufacturing sector as the sector to drive not only economic growth, but also job creation and it has done so through some of its achievements in the last financial year as cited in the 2017/18-2019/20 IPAP document.

IPAP sectoral focus areas in relation to the mer-sectors: these areas all have skills development angle which should be leveraged by the merSETA and its stakeholders to ensure sectoral development through skills.

Automotive sector: manufacturing in this sector contributes substantially to the South African economy as demonstrated previously. A major challenge faced by the sector is international competition, as such competitiveness improvement initiatives will continue to be implemented through the Automotive Supply Chain Competitiveness Initiative (ASSCI), which aims to enhance the strategy, planning and coordination of supply chain competitiveness improvement activities and initiatives. Overall, it addresses constraints and impediments to local competitiveness and enables supply chain capabilities, thereby increasing local content in South African manufactured vehicles. This should assist the

industry in addressing the broader economic challenges of growing industry employment, while at the same time advancing industry transformation. Key to this, is supporting skills programmes relating to engineering and the trades for sustainable productivity. Government will also finalise the Automotive Master Plan in 2017, incorporating considerations for improved monitoring and evaluation, market development, skills development and improved competitiveness.

Metal fabrication, capital and rail transport equipment: these sectors incorporate ferrous metals, non-ferrous metals, capital equipment and rail transport equipment. Government has prioritised localisation within these sectors, however challenges persist with respect to increased imports of components. This is exacerbated by challenges such as inadequate testing facilities and software engineering and development capacity (particularly in the rail signalling industry), and a lack of standardisation in key products across state procurement undermines localisation. This also signals inefficiencies with respect to policy alignment and coordination which in turn, limits local suppliers' ability to form a significant part of the global OEM value chain. In addition, high energy costs further hampers operations particularly high energy consumers such as the foundries. Sub-optimal port infrastructure and high cost of transportation undermines downstream industries. These constraints contribute to inefficiencies across the whole value chain which is already in a downward spiral due to lack of maintenance and investment in plant, machinery and equipment, the sectors inability to take up opportunities for growth. The policy also states that a lack of skills enhances these problems, particularly with respect to qualified artisans, technicians, engineers and project managers. The SIPs present the largest single opportunity to stimulate the industry on the back of localisation requirements and focused supplier development programmes. Significant investments in rail network and infrastructure projects on the African continent will increase the demand for locomotives and wagons. In addition, the African Union's pronouncement of South Africa as a rail Centre of Excellence for the African continent provides a crucial platform to deepen South Africa's rail manufacturing capabilities. Opportunities exist to integrate the rail rolling stock suppliers into the global value chain of the OEMs.

Plastics industry: plastics and plastic components have become a formidable force in the South African economy and contributes across various sectors such as construction, textiles, medical devices, automotive interiors, electrical components and boatbuilding materials. The sector however does have constraints with respect to import parity pricing, pricing of raw materials, a small local and regional market, lack of advanced manufacturing practices and a lack of downstream research and development. Government has prioritised support for the sector through optimised localisation and public procurement to foster economies of scale. Cluster based economic development through collaboration and cooperation enabling companies to operate at higher levels of efficiency through shared infrastructure, specialised assets and shorter reaction times. It is postulated that this also fosters innovation through research and development. The cluster system strives to increase investments for diversification to more sophisticated value added products to drive economic growth and create employment. merSETA has noted the variable skills requirements for the plastics sector through its research in value chains including advanced composites.

Overall, the IPAP proposes the following overarching initiatives:

- Maximise opportunities presented to the domestic economy by a growing market on the African continent.
- Strengthen local public procurement processes and deepening the process of ongoing monitoring and evaluation.
- Leverage the devaluation of the Rand to make South African manufactured products more globally competitive.
- Create opportunities for the expansion and further development of SA's domestic manufacturing capabilities and.
- Build strong partnerships with global Original Equipment Manufacturers (OEMs) that are focused on transferring technologies and growing our exports in OEM value chains.

Implications of the IPAP for the merSETA:

- Strong collaboration and consensus required between SETAs, government, academia, science councils, business and labour (innovative partnerships that are responsive to sectoral and national priorities such as beneficiation, industrialisation and innovation etc.).
- Targeted training and retraining of workers to ensure economic survival (identifying skills priorities through well researched sector skills plans responding to the needs of the (i) employer (ii) employee and (iii) national priorities.
- Up-skilling workers: existing jobs also go through step-changes in the skill sets required to perform them due to technology changes. Many jobs are threatened by redundancy. Other job types grow rapidly but unpredictably (Increased emphasis on skills sets in up-skilling workers).
- Promoting SMME, black industrialists, informal sector and retrenched employees through relevant skills interventions (86% of companies in the sector are SMMEs).
- Supporting innovation in products, services, business and training through industry lead research (chambers), postgraduate Masters and PhD research and partnerships in HEIs.

If industrial growth can be assisted by these key levers, this would catapult the sector into a new skills era, where opportunities for transformation and youth development are created. Investments in skills will thus not result in a brain drain or training for unemployment because opportunities could be taken up more readily.

2.3 CONCLUSION

It is clear from the discussion in this chapter that the manufacturing, engineering and related services sector is experiencing significant changes due to domestic and global economic developments. Technology is also a significant change driver in the sector, but has a far reaching impact on skills development and labour demand. It is also evident that merSETA needs to play an increasingly active role in supporting government imperatives. Many of these can be achieved through supporting skills development initiatives for key national strategies of which the IPAP captures many critical policy levers to affect real change.

A critical component however is anticipating skills needs of the future and putting in place mechanisms able to meet those needs through innovations in skills provision in the post schooling sector. If one considers that in the preceding chapters, the economy is waning, making workplace based learning difficult due to sheer lack of workplaces and therefore making post school training more difficult unless government support wider access and new forms of delivery as expressed in the recent open learning policy framework. merSETA is

already exploring options to widen access to training through leveraging skills development opportunities in more small, medium and possibly even informal workplaces. This requires innovation in skills provision without hindering quality. This is being explored by primary research looking into the small business, co-operative and informal sectors to better understand how they operate at a regional level and their ability and enthusiasm to take on skills development opportunities. In addition, technology enabled learning interfaces are being explored to assist learners in navigating the qualification and obtaining the necessary work experience while still ensuring all quality assurances and learning components are fulfilled.

3 OCCUPATIONAL SHORTAGES AND SKILLS GAPS

This aim of this chapter is to highlight skills supply and demand issues as well as to identify the scarce skills and skills gaps in the sector. The data was sourced from multiple sources such as the merSETA WSP data, merSETA chamber led research, desktop research and Statistics South Africa.

3.1 HARD TO FILL VACANCIES

This section reports on difficult to fill vacancies based on WSP data. It should be noted that while the WSP template requests that respondents identify vacancies in their organisation, the data may not be a true reflection of the actual vacancies in the sector. Although the sample size of the respondents is good, it is difficult to verify the accuracy of data in this regard. Where possible, findings are augmented by literature and stakeholder comments based on consultation. In addition, the method of analysing the data may be subject to scrutiny as there is no standard recommended approach proposed for the SSP.

3.1.1 Analysis of Vacancies in the Sector

The WSP 2017 data provides information on vacancies in the sector. Companies indicated the total number of vacancies that they had in the previous financial year, the number of vacancies that were filled in the previous financial year and vacancies they anticipate for the upcoming financial year.

The data yielded the following information:

- 350 companies reported that they had vacancies
- there were a total of 18 658 vacancies;
- 13193 vacancies were filled;
- 5465 vacancies were not filled;
  2060 vacancies are anticipated for the next financial year.

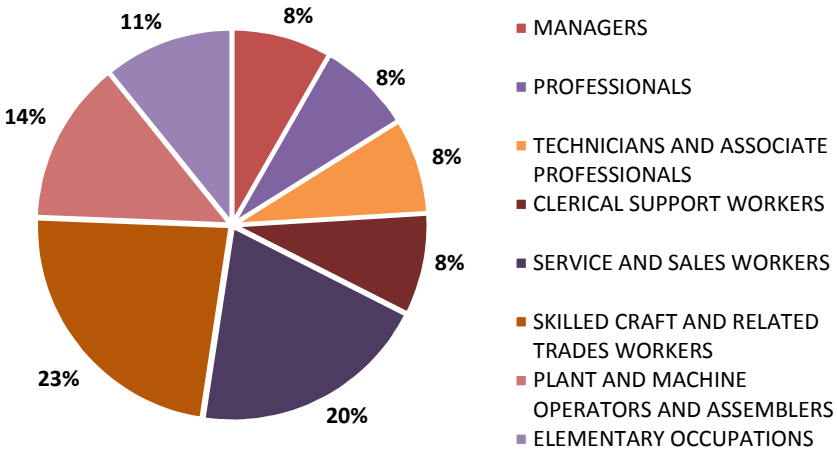
Unfilled vacancies in the sector were attributed to difficult to fill positions by respondent companies if more than half of vacancies for that position remained unfilled. The motor and metal sectors had the highest number of vacancies.

Figure 15 below, demonstrates total vacancies by occupational category. These vacancies are not necessarily difficult to fill, in fact the majority of the positions were filled. However, the graphic is presented in order to demonstrate total demand given the natural employee churn[2] across all occupations, it gives an indication more broadly of the type of occupations and skills the sector needs to support to remain viable in the market. When considering these items the figure below shows that greatest demand is for skilled craft and trades workers (naturally because the mer-sectors are driven by trades) followed by service and sales workers (particularly on the retail side[3]) indicating a demand for mid to higher level skills.

[2] Employee churn refers to the percentage of employees leaving the company over some specified time period

[3] This was confirmed in consultation with industry representatives and chamber representatives in a focused discussion.

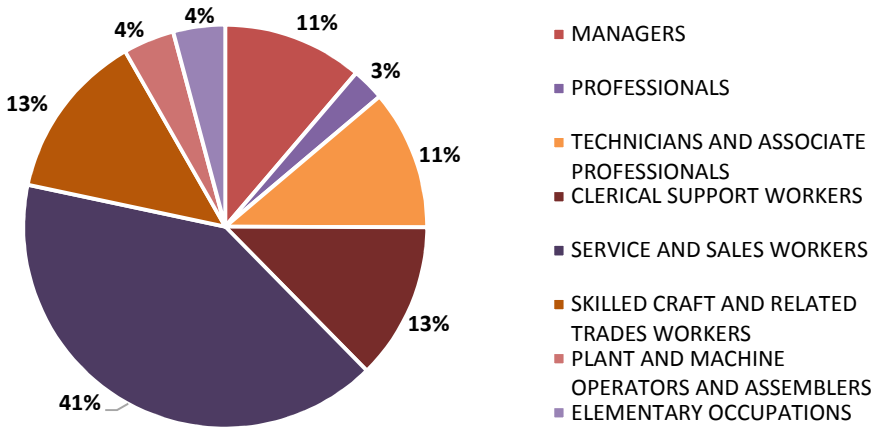
Figure 15: Total Vacancies in the Sector by Occupational Category (WSP, 2017)



3.1.2 Occupations that are Difficult to Fill

In the analyses, occupations that are deemed difficult to fill refer to occupations in which respondents reported that there were 20 or more unfilled positions. As demonstrated by figure 16, sectors reported greatest difficulty in recruiting talent into service and sales work, craft and trades work and management respectively.

Figure 16: merSETA Difficult to Fill Vacancies by Occupational Category (WSP, 2016)



Consultation on the reasons for the difficulty in filling service and sales positions indicate that the finding may be a result of two things, firstly during tough economic times it is not unreasonable for the business to increase the sales forced to make more profits and secondly, due to the nature of the work there tends to be a high attrition/churn rate of sales employees due to heavy demands within the job which often requires meeting sales targets and commissions. In addition, key findings from chamber led research reports as well as stakeholder consultation indicate the following conclusions about occupational demand in the sector:

- Professionals, technicians and associated crafts and trades workers, including artisans, emerged as the occupational categories where there is an increasing demand for more highly skilled people to meet the demands of these occupations. The demand has been pushed up as a result of digitisation, mechanisation, and automation of manufacturing processes. The data indicate the following hard to fill vacancies in these categories:

Table 11: Hard to Fill Vacancies by Occupation Category

Category	Occupation
Professionals	Sales Representative / Salesman (Industrial Products)
	Communication Coordinator
	Marketing Practitioner
	Industrial Engineer
Technicians and associate professionals	Electrical Engineering Technician
	Metallurgical or Materials Technician
	Draughtsperson
	Mechanical Engineering Technician
Trades workers	Automotive Motor Mechanic
	Diesel Mechanic
	Welder
	Metal Machinist

- There has been a decrease in demand for people at the lower occupational levels despite the fact that the lower skills categories such as elementary workers still constitute 19% of employees in the sector. Across the mer-sectors, stakeholders infer that employment numbers have remained stable, particularly in lower level occupations despite increases in productivity. This demonstrates jobless growth and, as businesses invest more in capital, job losses tend to occur on a larger scale among these workers.

Further analyses of these difficult to fill vacancies are required, taking into consideration additional factors such as overall employment rate within the occupation, the number of companies reporting high demand and supporting evidence in the form of additional skills required at national level through the SIPs, skills prioritised for immigration through home affairs and the national skills in high demand list. These occupations are presented in the PIVOTAL list and are unpacked in greater detail in section 3.6 of this document.

3.2 IMPACT OF SKILLS SHORTAGES

Skills shortages have a far reaching negative impact in the sector. According to key findings of the merSETA (2014/15) Chamber led research projects, the following emerged as the impact of skills shortages on firms:

- One of the major risk facing firms is the inability to upgrade to new technology which required highly skilled people to operate. Consequently, firms have failed to take full advantage of newer technologies that bring with them advantages such as lower production costs. Higher production costs translate to low profit margins.

- There is decline productivity and higher production costs as firms are stuck with older technologies that are less efficient, more expensive to maintain and more labour intensive.

- The lower rate of innovation in the South African manufacturing and engineering sector can be attributed to the shortage of highly skilled people capable of coming up with innovative ideas. The failure to offer innovative products is a risk for South African firms as they face the risk of losing business to competitors both locally and globally. This has resulted in South African firms losing a market share to firms from other countries such as China and other developed countries.

- The shortage of skilled people has also resulted in some employees working longer hours. This has a negative impact on employee morale, motivation and turnover of skilled employees.

3.3 SKILLS GAPS IN THE SECTOR

According to the DHET SSP Framework, skills gaps refer to "skills deficiencies in employees or lack of specific competencies by employees to undertake job tasks successfully to required industry standards. Skills gaps may arise due to lack of training, new job tasks, technological changes, or new production processes, to list a few. The term "top up skills" also refers to skills gaps. It usually requires a short training intervention".

Throughout this document the notion of future skills has been noted in light of globalisation and competitiveness, re-industrialisation and advanced manufacturing. Along with these trends arise critical skills and skill sets which are required by workers that are not necessarily found in traditional institutional learning. The world of work is changing as so is the notion of a workplace. In order for workers to keep pace and remain viable over time, they need to possess key skills that will allow them to be more successful in their work and more marketable to relevant sectors. The nature of skills gaps imply specific skills within an occupation which may not necessarily be covered in institutional training. Broad categories of skills gaps include critical thinking and problem solving, leadership, resilience, agility and adaptability, communication, interaction with ICT and creativity[4].

We have already noted that with automation on the shop floor, workers need to be re-skilled and up-skilled to take on opportunities. In order to do this, workers must possess key behaviours and mindsets in order to navigate a successful, progressive career. We may even say that from the time workers start their training, they should already have a good grounding on which to develop critical skills for success. An example of this is when apprentices attended a focus group discussion for an innovation initiative being developed by the merSETA to implement an ICT enabled platform to track learning and WIL. The developers and researchers noted that young apprentices felt hopeless with respect to their situation because they are well aware of the difficulties in accessing employment opportunities. However, they also note that they entered the apprenticeship due to a lack of any other opportunity given limited ability to finance occupational training themselves. This may indicate that the workers of the future have not identified with their "chosen" trade, they feel hopeless and moreover there seems to be a hesitance to engage in technologies beyond mobile messaging and social media.[5] Further research is required to better understand the skills gaps that exist in the predominant mer-sector occupations. As such, this section is dominated by desk research, although the COMET study as well as Chamber research reports reveal key findings in this regard.

Critical thinking and problem solving seems to be challenging in the current training space as demonstrated by the COMET study. Learners demonstrated low holistic problem solving competence, skills demonstrated reflect the challenges of limited lecturer competence and the emphasis on theory (Jacobs, 2017). These traits are important in most, if not all occupations of the future, according to Tony Wagner (2017). The workforce today is

[4] Skills gaps are not directly addressed in the merSETA data – as such desk research and sector consultations provide anecdotal indications of skills gaps for the sector at a high level

[5] These sentiments are based on a preliminary focus group with apprentices for one of merSETAs innovation projects headed by Helen Brown, the final research report will be made available upon completion of the project.

organized very differently than it was a few years ago. What we are seeing are diverse teams working on specific problems, as opposed to specific specialties. Managers do not have all the answers and solutions—teams have to work to find them. These skill sets build the foundations of innovation. We have to have the ability to question and criticise before we can innovate and prescribe alternatives. Discussions among stakeholders involved in the mer-sectors have highlighted the successes achieved by artisans who are trained on two trades as opposed to one such as the millwright. These artisans are in high demand.

Collaboration and leadership, as already discussed, is the key to solving problems and requires a particular mind set as well as the ability to work with others in teams. In order to get teams to work effectively, leadership skills are required that embrace positive influence rather than exerting authority. Technology enabled teams are able to operate across continents and leaders need to influence such that the team is effective and able to work together to find solutions. When one considers those apprentices who felt insecure about their future, perhaps being afforded opportunities to achieve goals through collaboration and effective leadership would strengthen their resolve. This could be likened to Blooms Taxonomy as presented by Prof Bawa (NSA, 2017), the domains of learning comprise mental skills or knowledge, manual skills or doing and affective components related to emotions and attitudes. These three domains can enable the worker or learner to use theory to do a particular task, assess the outcomes and feedback and master the skill/s over time. These dimensions can positively influence the workplace and foster innovation. Communication is a key skill in this respect and as many sectors move to more knowledge based activities, the ability to communicate effectively is key.

Resilience, agility and adaptability is highly important in modern workplaces. As companies need to adapt to changing consumer needs, so too workers must be able to adapt and learn new skills. Lifelong learning is a concept that all workers must take on to remain viable across all levels. Some skills are becoming redundant with changing technologies and the pace at which technology develops is faster than ever. Workers in the mer-sector must adopt skill sets that allow them to take on these challenges either through taking on a parallel function or deeper specialisation in their current function. There is a need to reconsider the focus of education and training in light of these skills gaps; the mode of delivery is important and making training relevant to the real world scenario is key. Many of these skills are related to lifelong learning and can be instilled in learners prior to them entering the post schooling phase. Taking into consideration the key driver of adopting a training framework for the needs of the current and future workforce as highlighted in chapter 2, the system must also ensure that trainers and lecturers are themselves able to embody these critical skills.

3.3.1 Skills gaps and future skills analysis

The merSETA has endeavoured to better understand at a very high level the impact of manufacturing 4.0 on its sectors and have posed key question in terms of skills issues that they are grappling with in the South African context6.

Metal Chamber: the metals sector has highlighted the poor state of STEM in the education sector. These skills were highlighted as key to the type of worker required now and in future. The sector also expressed the difficult socio-economic situation in South Africa – on

[6] These notes make reference to sector inputs made at the merSETA interChamber workshop, February 2017 as well as SSP workshops, June 2017.

the one hand, the sector must compete on a global level, interact with sophisticated manufacturing methods and technologies and on the other hand, it must also foster small business and community development. Support is needed for entrepreneurs and potential business ownership. Skills gaps highlighted make reference to technology and supervision skills as well as the need to augment qualifications with part qualifications which must be expedited through the QCTO.

Plastics Chamber: overall, the sector requires engineering skills related to manufacturing, robotics and maintenance. Radical action is required to stimulate job creation in the era of automation and optimization of manufacturing processes. Relevant skills required for the future relate less to specific skills, but rather higher level skills sets comprising electrical, electronic, ICT and management skills. However, due to specialist nature of the sector and advanced composites, more companies may opt for in-house training.

New Tyre Chamber: the sector is currently labour intensive and required a low level of skills, however the future will require a worker to have ICT skills, management and maintenance skills due to automation. Innovation is also required particularly with regard to recycling, upcycling and supporting the green economy.

Auto Chamber: according to this sector, the future of the sector can see 100% automation, with body shops run by robots. As such, maintenance was again raised as a key skills requirement in the future as well as general interaction with technology. The sector is also globally competitive and must ensure it is able to meet the demand of manufacturing 4.0. This sector also reported that a worker now requires skills inherent to being a good worker of the future with problem solving, ability to understand different technologies and able to move in different areas of specialization and required.

Motor Chamber: this Chamber highlighted the need for adequate career pathing so that even low skilled workers are able to progress in their careers. Skills gaps exist because trainers and lecturers do not have adequate industry knowledge. Problem solving and the notion of competence were discussed as well as lifelong learning to encourage the worker to take charge of his/her work life. Interestingly, the Chamber also highlighted hindrances to entrepreneurship including not only the skill to adequately run a profitable business, but also to be able to afford the expensive machinery required, hence financial support for entrepreneurs is also critical. In addition, employers should be adequately able to measure competence of its workers and encourage lifelong learning and streaming into career oaths suited to the individual, possibly even spotting potential of workers who could be good business owners or managers.

Overall, the discussions with the Chambers tended to have similarities with respect to maintenance required for robotics and automation, problem solving and high level skills and skill sets particularly skills related to being able to interact with technology and ICT. Similarly, is the notion of entrepreneurship and support for business ownership and in the case of the worker self-ownership in navigating their career and being informed enough to know that one will require multiple skills to remain relevant in the market now and in the future.

3.4 EXTENT AND NATURE OF SUPPLY

3.4.1 Current Supply

The stock of skills available to the metals, automotive and plastics manufacturing sectors includes the group of people currently employed as well as those who are currently unemployed, but available for work. Current unemployed people who were previously employed in the sector, must also be considered as part of the current supply of skills. The sector has shed many jobs since 2008 as a result of the economic recession as well as some other recent factors that have served to constrain growth and profitability. In addition, labour unions have provided evidence that retrenchments in the sector are ongoing. This group of recently retrenched workers forms the pool of immediately available skills that can be drawn from to meet both new - and replacement demand.

In 2014, the total number employed in the manufacturing industry was 1 213 560 with metals, metal products, machinery and equipment employing the largest number of people (257 098 or 21%), followed by food products and beverages (231 320 or 19%), and then by coke, petroleum, chemical products, rubber and plastics (173 605 or 14%) (Stats SA, P3002, 2014). In the manufacturing industry, employment in has decreased by 2,4% per annum as compared with 2011 with a total of 1 304 576 employed (Stats SA, P3002, 2014).

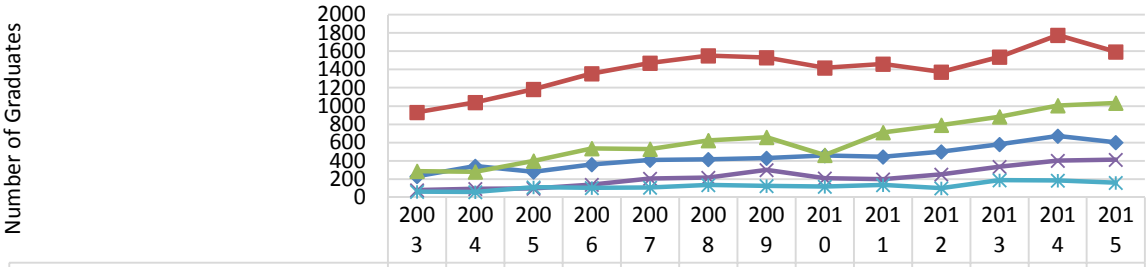
Upon comparison of the Q1 year on year QLFS data from March 2009 through March 2016, employment in the manufacturing sector has on average decreased by 4.12% on a yearly basis. This trend however has slowed in the recent past with employment in the manufacturing decreasing by 1% in quarter one of 2016 compared to quarter one of 2015 (QLFS trends, 2009-2016, own calculations).

3.4.2 Higher Education and Training

While a range of general qualifications from the Higher Education and Training (HET) sector in the areas of finance, accounting, human resources and Information and Computer Technology (ICT) are utilised in the merSETA sector, the output of engineers is most relevant; particularly in the fields of electrical engineering, mechanical engineering, chemical engineering, industrial engineering, and metallurgical engineering.

Figure 17 below, shows the total number of graduates with national diplomas in selected engineering fields from 2003 to 2015. These graduates become available to the national economy as engineering technicians in the relevant engineering disciplines. Electrical engineering continues to have the highest output (1594 in 2015), followed by mechanical engineering (1033 in 2015) and chemical engineering (604 in 2015). Output from all fields has increased substantially over the twelve-year period, although a slight decrease in output was reported in all fields except chemical engineering in 2010.

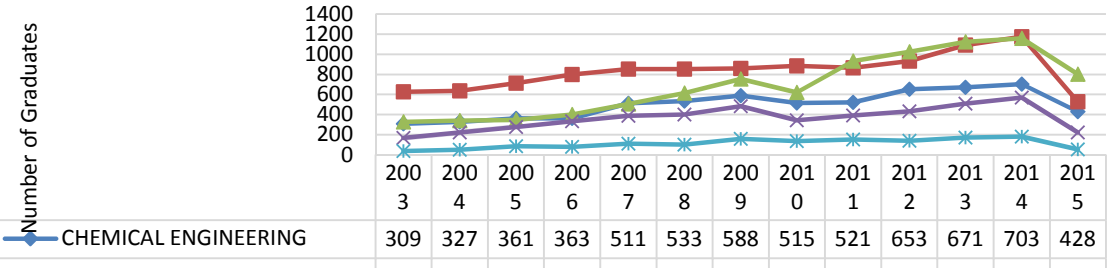
Figure 17: Number of National Diplomas Awarded in Selected Engineering Fields: 2003-2015 (Source: CHE, HEMIS, 2017)



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHEMICAL ENGINEERING	230	342	279	362	411	418	431	460	444	499	580	671	604
ELECTRICAL ENGINEERING	930	1039	1184	1354	1472	1552	1532	1417	1460	1372	1537	1775	1594
MECHANICAL ENGINEERING	288	279	398	537	530	623	660	463	711	793	883	1004	1033
INDUSTRIAL ENGINEERING	80	94	97	139	207	216	302	210	200	254	336	404	413
METALLURGICAL ENGINEERING	63	60	111	105	107	136	127	120	138	100	189	185	160

Figure 18 below, shows the number of first degrees awarded in the same selected engineering fields during the ten year period of 2003-2015. Upon successful completion of their qualifications and a minimum three years practical experience, these graduates become available to the national economy as engineers or engineering technologists and can register with ECSA as professional engineers or engineering technologists in their respective fields. In 2010, a decrease in total output was reported across all fields except electrical engineering which showed a 3% increase during the same year. In the following year (2011) increase in output was the greatest in electrical engineering (863), followed by mechanical engineering (775), and chemical engineering (519). The average annual increase was greatest in metallurgical engineering (18.1%) followed by mechanical engineering (13.4%), industrial engineering (13%), chemical engineering (8.5%) and lastly, electrical engineering (6%). In 2015, according to HEMIS data, there is a stark decline of outputs of degrees in all engineering fields (Figure 18), this could be attributed to the "fees must fall" campaign which disrupted the academic year in October 2015, which may have reduced anticipated degree completions.

Figure 18: First Degrees Awarded in Selected Engineering Fields: 2003-2016 (Source, CHE, HEMIS, 2017)



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHEMICAL ENGINEERING	309	327	361	363	511	533	588	515	521	653	671	703	428
ELECTRICAL ENGINEERING	627	637	712	799	852	853	858	884	865	934	1092	1174	528
MECHANICAL ENGINEERING	328	338	345	401	506	615	754	619	934	1025	1124	1160	802
INDUSTRIAL ENGINEERING	167	221	275	332	387	400	482	344	389	431	510	569	221
METALLURGICAL ENGINEERING	38	51	86	79	109	99	157	135	151	140	170	179	54

Importantly, graduates with national diplomas and first degrees from the HET system have to meet the needs of all sectors of the national economy that require these skills, and not only the needs of the manufacturing, engineering and related services sectors. Competition between sectors is strong because, despite the positive growth in output in all fields, these increases have not been sufficient to alleviate the shortages of these skills in the country. As

such, direct support for the generation of these skills through incentive schemes such as bursaries plays a critical role in channeling graduates into the manufacturing, engineering and related services sector. merSETA has awarded 1306 bursaries to date with 394 learners having successfully completed a qualifying programme in accordance with merSETA to date.

A study conducted by the Human Sciences Research Council (HSRC) found that the engineering skills development pipeline is not only long, but is also being adversely affected by a number of factors. One of these factors is the poor-quality schooling system in South Africa, with low enrolment in the critical subject areas of maths and physical science (combined with low-quality teaching and low pass rates in these subjects), which poses a fundamental challenge to growing the national pool of engineers. Engineering faculties also compete with other faculties for enrolments from a small pool of eligible school leavers, among whom Africans are still under-represented (HSRC, 2013).

Poor school preparation is a factor of poor engineering throughput rates, together with other issues such as the increased engineering class sizes; the difficulty some students have in accessing study finance; and limited workplace-training opportunities, which are compulsory for graduation for students from the universities of technology (Du Toit and Roodt, 2009). Another key factor, is the difficulty candidate engineers (having successfully passed their academic studies) have in obtaining mentorship support that would allow them entry into and registration with ECSA. This challenge, arising out of historical racial and gender imbalances is a serious threat to retaining these high potential candidates for the sector.

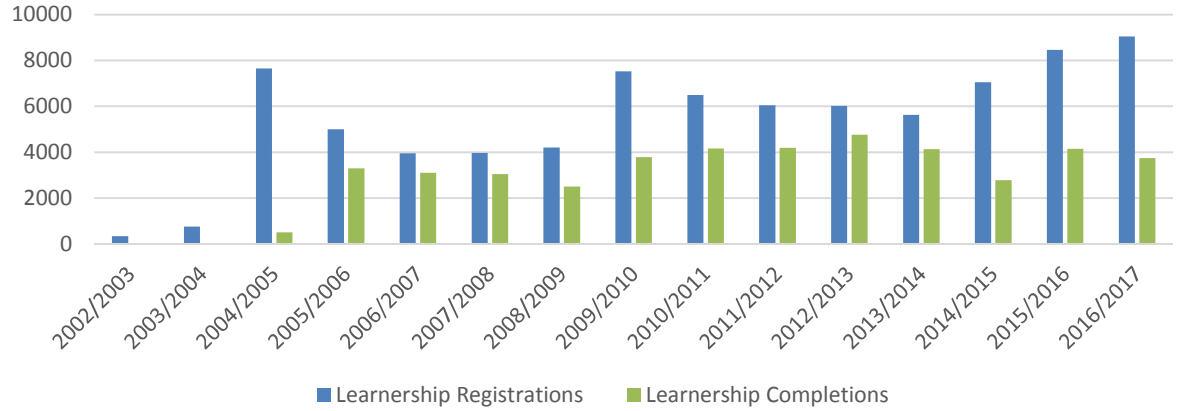
3.4.1 Learnerships and Apprenticeships

Since its inception, the merSETA has registered 78778 apprentices on apprenticeships and 81483 learners on learnerships. The predominant trades attained through apprenticeships include motor mechanic, diesel fuel injection mechanic, electrician (engineering), fitter and millwright. In the same period, a total of 45944 apprentices qualified as artisans in the sector and another 45013 learners successfully completed their learnerships (QMR, 2017). The most dominant learnership programmes completed include welding application, automotive components: manufacturing and assembly, production technology, automotive repair and maintenance and metals production (QMR, 2017).

The annual registration and completion figures for apprentices and learnerships since 2002 are shown in Figure 19 and Figure 20 below. It is clear that apprenticeships and learnerships form a crucial part of the supply of skills to the sector. Therefore, the merSETA continues to support the uptake of these learning pathways and continues to monitor trends in registrations and completions. From outside the manufacturing, engineering and related services sector, the NGP aims to increase the number of artisans available to the SA economy as a whole through leveraging training from all state-owned enterprise (SOEs). From across Eskom, Transnet, South African Airways (SAA), Denel, Safcol, Alexcor and Infraco, the aim is to have at least 20 000 people enrolled in artisan-related apprenticeships and learnerships between 2011 and 2015 (EDD, 2011).

Figure 19: Apprenticeships Entered and Certified (merSETA QMR data, 2017)

Figure 20: Learnerships Entered and Certified (merSETA QMR data, 2017)



TVET Colleges

Traditionally, TVET college programmes in engineering have been very limited and narrow in content as they were designed to meet the demands of manual low-skill and low-wage industries. This has resulted in challenges for universities and universities of technology in their attempts to recognise these qualifications for articulation purposes. According the merSETA QMR data, the main trade areas studies towards in TVET Colleges in the manufacturing sector include among others Electrical engineering, boilermaker, diesel mechanic, and engineering and related design (QMR, 2017). Additionally, as the work-experience component of training is not enforceable, employers have been reluctant to accept these students.

TVET colleges form a critical component of the current training capacity of artisans. TVET colleges offer training for the NQF Level 4 National Certificate (Vocational) (NCV) and merSETA currently has relationships with the majority of TVET colleges. Through partnerships with public TVET colleges, the merSETA is increasing the artisan development pipeline through the NCV artisan training programme. This programme has offered NCV learners an alternative pathway to becoming artisans, besides following the traditional apprenticeship pathway.

Government has highlighted the long-term importance of TVET colleges in generating the skills that will assist the nation in reducing poverty and unemployment, and their short-term importance in generating the skills required to support the SIPs. As such, the support and growth of this form of education and training has become a major focus of government intervention. The White Paper for Post School Education and Training, reiterates that the

DHET's priority is to strengthen and expand public TVET colleges and turn them into institutions of choice for school leavers (DHET, 2013).

3.4.2 Regional Variation in Skills Supply

merSETA's focus on skills supply has generally considered the flow of skills into the labour market at a national level. The more localised perspective of skills demand has however been fore-fronted by an increasing focus on the SIPs, IDZs and SEZs with the result that skills supply must now also be considered at regional level. A research study commissioned by merSETA in 2013, highlights the regional variation in skills development opportunities in Gauteng province, the province that is considered to have the best skills development infrastructure in the country (Lolwana, 2013). This study will be supplemented by research currently underway to map out more specifically the regionality of the sectors with respect to SMEs, cooperatives and the informal sector. The spatial challenges encountered by particularly the poor in accessing education and training means that the issue of regional variation in skills supply needs to be considered more closely. To support the regional variation in supply and skills development initiatives, the merSETA regional committees are focused on supporting the Provincial Human Resource Development Councils as well as other regional stakeholders through regional Premiers' Offices.

3.5 TRAINING AND DEVELOPMENT OF THE CURRENT WORKFORCE

This section describes initiatives that the merSETA has put in place to train and develop the sector's current workforce. While many of these initiatives do not address the issue of 'scarce' skills directly, they do however address the need for skills which industry considers as 'critical' to its continued operation and growth prospects.

3.5.1 Qualifications Developed by the merSETA

Companies in the manufacturing, engineering and related services sector are involved in a range of training and development initiatives that focus on developing the skills of their employees. Such initiatives supplement, but also build on the training that supplies new skills to the sector. This training and development of the current workforce forms a critical source of skills supply. merSETA qualifications registered with SAQA range from NQF Level 1 to Level 5 and the majority of these qualifications are attained through learnerships. The merSETA skills programmes are made up of unit standards or groups of unit standards that belong to these qualifications.

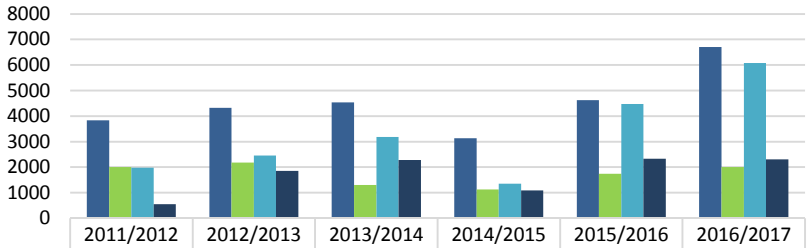
3.5.2 Management and Supervisory Development

Managers and supervisors in the metals, automotive and plastics manufacturing sectors need a combination of industry-specific knowledge and technical knowledge of skills in the functional area to be managed, as well as supervisory and management skills. In most instances managers and supervisors are drawn from within the workforce (and therefore, already have technical and functional knowledge). Further skills development happens through combinations of formal training programmes such as Masters of Business Administration (MBA) programmes as well as short courses and in-service training. The limited supply of particularly black managers means that a focus of this form of training for potential managers from previously disadvantaged backgrounds will remain critical into the foreseeable future. The merSETA's Women in Leadership programme is one such significant example of programmes aimed at developing potential managers and business leaders from previously disadvantaged backgrounds.

3.5.3 Skills Programmes

A skills programme is a structured learning programme that comprises an agreed cluster of unit standards drawn from a NQF registered qualification. A skills programme may specify the sequence in which the unit standards must be achieved and the practical (workplace) experience that forms part of the programme. A completed skills programme therefore constitutes credits towards an NQF-registered qualification. Skills programmes continue to form an important part of the training and development of the occupational groups 'plant and machinery operators and assemblers' and 'elementary workers'. Registration in skills programmes has increased steadily. Between the 2011/12 and 2016/17 financial year a total of 43356 learners were registered in skills programmes with 18668 qualifying during the same period (see figure 21). This is possibly linked to the new focus on post qualification specialisations or new technology/product related skills training.

Figure 21: Skills Programme Registrations and Completions: 2011/2012-2016/2017 (merSETA QMR data, 2017)



	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017
SKILLS PROGRAMME WORKERS ENTERED	3830	4325	4534	3132	4622	6706
SKILLS PROGRAMME WORKERS CERTIFICATED	2008	2177	1300	1124	1739	2008
SKILLS PROGRAMME UNEMPLOYED WORKERS ENTERED	1978	2461	3188	1358	4467	6078
SKILLS PROGRAMME UNEMPLOYED WORKERS CERTIFICATED	551	1856	2278	1089	2329	2302

Adult Education and Training (AET)

Adult Education and Training (AET) is especially prevalent among the relatively large group of lower skilled. A substantial 19% of the sector's employees are employed as elementary workers and are likely to have formal educational levels below NQF Level 1. A proportion of those employed as plant and machine operators and assemblers (especially older employees) are also likely to have comparatively low levels of formal education. For these groups, AET is critical to the sector's ongoing need to raise general skills levels and support the acquisition of critical core skills and health and safety skills.

3.6 SKILLS SUPPLY SIDE CHALLENGES

3.6.1 General Education and Training (GET)

The output of the General Education and Training sector to the overall supply of skills for the merSETA sector is important in two key ways. First, the number of learners graduating with mathematics and physical science as subjects at grades that support entry and success at higher education level in qualifications such as engineering has a direct impact on the ultimate availability of these high-level (and future management) skills for the national economy and the merSETA sector. When comparing the average pass rates of mathematics and physical science for 2013 to 2014, mathematic declined from 59.1% to 53.7% and physical science declined from 67.4 % to 61.5% (ENCA, 2015). In 2015, the averageness percentage pass rate for mathematics declined further to 49.1% and physical science

declined to 58.6%. In 2016, compared to 2015, in both subjects there was an increase from 49.1% to 51.1% for mathematics and from 58.6% to 62% for physical science. Although this is an improvement from 2015, overall since 2013, the average pass rate for mathematics has decreased by 8% and physical science has decreased by 5.4% for the same period (Business Tech, 2017). These low percentages, combined with the absence of any clear improvement trends for these key subjects, is concerning and a factor that limits the higher education system from increasing access to and success in many of the high-level scarce-skill occupational qualifications.

3.6.2 Dropout Rates

A large number of engineering students tend to drop out of university within the first two years and by the fourth year, in certain technical disciplines, as few as 10% of the original first year class graduate in South African universities (Business Tech, 2015). A study conducted by the Engineering Council of South Africa, found that for the four-year engineering undergraduate programmes offered by HEIs in South Africa, only 30% of first year enrolments graduate after five years while 14% remain in the system repeating modules (AEEA, 2016). The study found also found that 56% of first year enrolments drop out of university without completing their engineering studies (AEEA, 2016). Recent evidence shows that on average 70% of the families of the higher education drop-outs surveyed were in the category "low economic status". Many of those who dropped out indicated that they worked to supplement their inadequate financial resources, no doubt adding to their stress levels and distracting them from their studies (Letseka and Maile, 2008: 5). A recent survey by Statistics South Africa (2015) indicated that the cost of education rose by 9, 3% in March 2015 compared with March 2014. This is 5,3% percentage points higher than the headline CPI of 4,0%. Rising education costs present a barrier for those seeking an education. Stats SA's latest *General Household Survey* reports that 33% of individuals aged 5–24 indicated that a lack of money was the reason they were not attending an educational institution. To improve the number of learners completing their studies, funding should reward graduate output without reducing the opportunities of learners from disadvantaged backgrounds (The Presidency, 2014).

3.6.3 Competition for Skills with Other Sectors

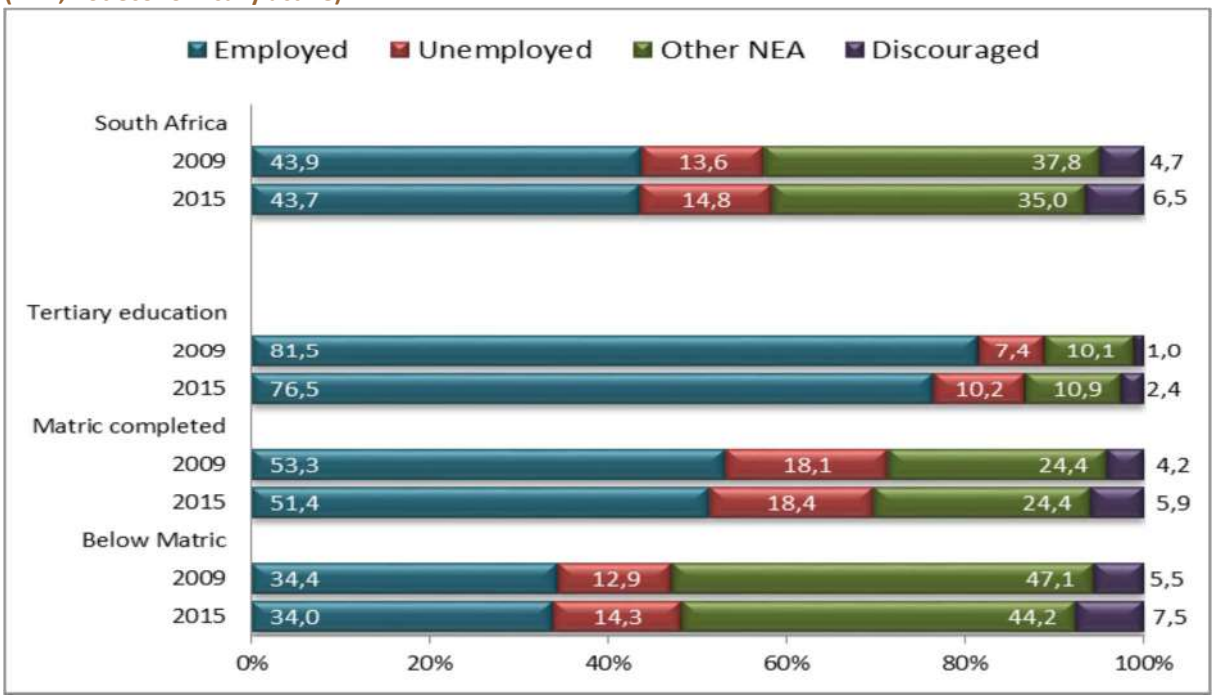
The manufacturing and engineering sector competes with other sectors to attract engineering graduates whose skills are sought after in other sectors such as construction, finance, ICT, energy and mining etc. The movement of skilled artisans and engineers across the sectors also pose a supply-side challenge for the manufacturing, engineering and related services sector. Attractive working conditions in other sectors may be a pull factor for engineers, technicians, artisans and professionals in the merSETA sector. The decline of the manufacturing sector which has been coupled with declining employment in this sector as indicated in previous chapters has reduced the attractiveness of this sector.

3.6.4 Employability of merSETA Graduates in the Labour Market

Evidence from research on artisan employability conducted by the merSETA (2013), suggests that there is still a strong belief that apprenticeship graduates have a clear advantage over learnership graduates when entering the market. There is a general belief that companies still prefer the traditional route of studying and that apprenticeship graduates obtained more relevant skills. According to the merSETA 2015 tracer study, 84% of the learners who had completed apprenticeship programmes were employed. Of the 84% employed 49% were retained in full-time employment by their initial employer while 25% were employed full-time by a different employer. About 10% of the learners were employed part-time while 16% indicated they were still unemployed.

According to Stats SA's labour market dynamics report 2016, in general people with tertiary level qualification are more readily absorbed into the labour force than those with lower level education (matric and below). This data does not categorically state the absorption rate of FET band graduates, therefore more analysis is required specifically focusing on mer-sector employees.

Figure 22: Components of the Working-age Population by Education Level, 2009 and 2015 (Stats SA, 2015) (NEA, not economically active)



A recent report by the merSETA Metal Chamber, expressed concern on the quality of graduates coming through the TVET system. Concerns are around the relevance and up to datedness of the curriculum, lack of practical work exposure of TVET college learners and lectures who lack industry exposure. This confirms earlier findings by the merSETA employability in engineering survey in 2013, that concluded that employers felt TVET college students lacked practical exposure to industry and also lacked the practical skills. This has affected the employability of TVET graduates. On the other hand, research revealed that employers however have high perceptions of university graduates and felt that their qualifications were of a higher standard as revealed by a merSETA (2013) study. This, in turn has a huge positive impact in the employability of university engineering graduate students who are in high demand, not only in the sector, but also other competing sectors such as ICT, finance and mining.

3.7 PIVOTAL LIST

A priority skills list of scarce skills is drawn up by the merSETA using a combination of statistical analysis of vacancy data from the WSP. Other national skills lists are also consulted, these include the Top 100 Occupations in High Demand produced by DHET, the SIPs scarce skills list and the Home Affairs list of scarce skills.

The methodology broadly comprises the following steps:

i. **Analysis of WSP vacancy data** to determine trends in vacant occupations (albeit very anecdotal, there is recognition of the fact that the data are not very reliable, but it does serve as the best data available that can be attributed to the sector and subsectors). The analysis broadly incorporates filtering out difficult to fill positions relative to employment rates per occupation, the number of companies indicating difficult to fill vacancies and representation across the 5 merSETA subsectors.

ii. **Analysis of skills lists from DHET, Home Affairs, SIPs**; these lists were merged to form one master list of skills in high demand and were again merged with the list of skills from the WSP analysis.

iii. **Skills emerging form Chamber research reports and consultation with Chamber representatives**, chamber research reports were used to extract skills needs and merged with the master skills list. This list was then circulated to the chambers for consultation agreement on the skills highlighted.

iv. **Assessing demand for skills based on PIVOTAL Plans**, the extent of demand was determined from what stakeholders had indicated that they require for the next financial year on the PIVOTAL Plan.

v. **Determining PIVOTAL interventions**; the interventions were determined through analysis of the PIVOTAL Plan in terms of the type of intervention (apprentice ship, learnership, learning programme etc.). The interventions that appear most often against a particular OFO were determined to be in higher demand. These analyses also highlight sector trends in terms of skills sets and multi-skills, but these would need further investigation to determine more concrete trends.

vi. **Determining the NQF level**, once again the PIVOTAL plan was used to determine the NQF level or range of NQF levels. The analyses also indicate sector trends in terms of demand for higher level skills as many were above NQF 4. The resultant NQF levels were determined based on the range (lowest to highest) the mode (most repeated level) and the average (average across the range).

The analyses as outlined above resulted in the following ranked list of scarce skills, specialisations, interventions and NQF levels (see table 12). The ranking is based on relative demand across the chambers with smaller sectors having their skills needs weighted up to ensure representation in terms of relative demand. The table shows 35 occupations in high demand for the merSETA.

Table 12: merSETA PIVOTAL list

Rank	OFO Code	Occupation	Relative demand
1	2015-653101	Automotive Motor Mechanic	1305
2	2015-651202	Welder	1285
3	2015-312201	Production / Operations Supervisor (Manufacturing)	1261
4	2015-832901	Metal Engineering Process Worker	904
5	2015-651302	Boiler Maker	783
6	2015-671101	Electrician	771
7	2015-721901	Product Assembler	689
8	2015-653306	Diesel Mechanic	624
9	2015-653303	Mechanical Fitter	618
10	2015-214101	Industrial Engineer	574
11	2015-432201	Production Coordinator	566
12	2015-311501	Mechanical Engineering Technician	547
13	2015-671202	Millwright	532
14	2015-311301	Electrical Engineering Technician	493
15	2015-714204	Plastics Production Machine Operator (General)	493
16	2015-132102	Production / Operations Manager (Manufacturing)	415
17	2015-214401	Mechanical Engineer	411
18	2015-242303	Human Resource Advisor	294
19	2015-652201	Toolmaker	290
20	2015-652302	Fitter and Turner	261
21	2015-713101	Chemical Production Machine Operator	253
22	2015-311801	Draughtsperson	226
23	2015-226302	Safety, Health, Environment and Quality (SHE&Q) Practitioner	225
24	2015-733201	Truck Driver (General)	208
25	2015-121901	Corporate General Manager	188
26	2015-215101	Electrical Engineer	174
27	2015-122102	Sales Manager	172
28	2015-121101	Finance Manager	166
29	2015-121202	Business Training Manager	106
30	2015-311201	Civil Engineering Technician	95
31	2015-241301	Financial Investment Advisor	18
32	2015-671208	Transportation Electrician	195
33	2015-311101	Chemistry Technician (paint maker)	28
34	2015-652204	Patternmaker	19
35	2015-714205	Reinforced Plastic and Composite Production Worker	15

The envisaged outcomes of the interventions are dependent on demand. The initial analyses points to a full qualification in instances of a bursary, apprenticeship or learnership (although the learnership model also lends itself to modular learning in terms of acquiring skills sets). Skills Programmes would result in a part qualification and does give support to the finding of a higher need for workers with skills sets. All PIVOTAL interventions result in a full or part qualification aligned to NQF.

The PIVOTAL list also demonstrates a high demand for managers, professionals and technicians in addition to artisans. This does indicate a demand for higher level skills as well as skills suited to a knowledge economy. A research paper on the state of the manufacturing sector reports that over time there seems to be a decreased demand for artisans, in spite of the South African government's call for increased demand for engineers and technicians. Given the slowdown in the number of graduations over time, merSETA is well positioned to partner with HEIs to increase throughput and support candidates to become registered engineers and technologists. These trends need to be closely monitored in order to tailor an approach which will provide these skills to the market.

3.8 CONCLUSION

This chapter reflects on the categories of skills development needs in the merSETA sector that have been alluded to in the previous chapters. In respect of the specific skills that need focused attention, the PIVOTAL list of occupations in high demand is also presented in this chapter as well as areas of skills gaps that need to be considered. Overall, a range of factors will impact on the future of skills supply and demand in the sector. These factors include future growth of the economy, the implementation of interventions aligned with national strategies including transformation, a demand for higher level skills in the sector and the demand for better the quality of skills supplied including skills gaps. Interventions cannot only take into consideration skills that are listed in the PIVOTAL list of occupations in high demand, but the merSETA must also support skills that keep the sector going as well. Future skills must be researched more closely and interventions tailored to meet these needs must be implemented through special projects and innovations aimed at meeting industry needs.

The learner/worker is central to the merSETA mandate and the skills development system of delivery must be made more accessible to workers while still catering to the needs of the employers to remain competitive. In times of economic difficulty, employers may struggle to assist with work integrated learning, therefore merSETA is embarking on better understanding smaller employers, cooperatives and the informal sector to better leverage skills development opportunities. These interventions must also take into account regionality and local community development. Issues of access, regional economic dynamics and opportunities for success should be highlighted and will be researched for better skills interventions. Skills shortages tend to put pressure on existing employees and could threaten collaboration, communication and innovation, as such there is a need to partner with industry to ensure that skills development initiatives support grooming of new and existing talent to take up key positions.

Automation and technological advances require re-skilling and up-skilling. Stakeholders have highlighted the demand for interventions fit for provision of skills for the future, but at the same time the sector must produce skills now for skills that are becoming redundant. It was suggested that dual trades could offer workers more possibilities in terms of lateral movements as well as horizontal movements as they navigate their career pathways. Ultimately, merSETA must become ever more innovative regarding skills provision, taking on for itself agility and adaptability by better servicing both learners and employers. This requires leadership with respect to unpacking issues highlighted in this SSP and deliberating on acceptable approaches through current interventions and innovations as well as identifying key partnerships or projects to support sector demands.

Finally, there is need for up-scaled efforts to secure shared and inclusive growth, transformation of ownership and management control and empowerment through decent jobs, especially in labour-intensive sectors. The government has committed to Radical Economic Transformation, coupled with systematic, interlinked initiatives in its bid shift the productive base of the economy away from the inherited colonial system and create decent sustainable jobs. Radical economic transformation is about increasing the participation of people from previously disadvantaged backgrounds in the mainstream economy. Lack of skills and access to opportunities are some of the significant barriers preventing people from previously disadvantaged backgrounds from participating in the mainstream economy. The merSETA therefore needs to tailor its programmes to increase its support for historically disadvantaged groups the majority of whom still remain in the peripheries of the economy. This includes the support of black owned businesses some located in the townships (township economy) and rural areas (rural development).

4 PARTNERSHIPS

The purpose of this chapter is to assess the effectiveness of existing partnerships in the sector. The chapter will highlight the successes, challenges and propose best practices for strengthening partnerships. New partnerships needed in the sector will also be identified.

4.1 STATE OF EXISTING PARTNERSHIPS AT THE MERSETA

Partnerships play an essential role in strengthening skills development interventions by creating and strengthening synergies among players in the skills development eco-system. The NSDS lll, clearly states that programmes contributing towards the revitalisation of vocational education and training, including the competence of lecturers and trainers to provide work-relevant education and training, as well as to promote occupationally directed research and innovation must be implemented.

For the merSETA, partnerships are a mechanism for achieving its strategic objectives and deliver services to its stakeholders and learner beneficiaries. To this end, the merSETA has established through partnerships a national footprint for implementing skills development initiatives especially those contributing towards the revitalisation of technical-vocational education and training including raising the competence of lecturers and trainers to provide work relevant education and skills development. merSETA has also put in place partnerships to increase research capability for technical-vocational education and skills development as well as for skills planning. A growing emerging partnership type is to avail innovation research and development skills for businesses operating in the manufacturing, engineering and related services sector through supporting post graduate scholarship at Masters, PhD and post doctorate level. Also facilitating access for manufacturing, engineering and related services sector businesses to research capabilities of engineering departments of HEIs with which merSETA has partnership agreements. The merSETA agreements support local networks between industry, government and post school institutions resulting in the provision of work experience and work integrated learning opportunities for TVET colleges' and HEI students as well as enabling engagement between workplace trainers and occupational experts and college/HEI educators. The partnerships are categorised below.

The current and new merSETA partnership agreements are with:

- National and provincial government department, including public entities
- International organisations
- Public higher education institutions
- Thirty nine (39) TVET Colleges
- SETAs
- Trade unions
- Not for profit organisations
- Employer organisations

The key success of merSETA partnerships has been merSETA exceeding its targets for learning programmes, in some instances over 200% of targets reached in the key area of artisan training. This has been in spite of the decline being experienced in the manufacturing industries. In the previous year, merSETA enabled close to 15 000 employed and unemployed people to enter artisan training programmes either through learnerships, apprenticeships, RPL and its retrenchment assistance programme. Agreements with TVET colleges enable NCV learners to be placed into industry to obtain work integrated learning

towards becoming qualified artisans. For high-end engineering skills, merSETA enabled close to one thousand university students access work integrated learning opportunities and internship opportunities. Partnerships with TVET colleges in all the nine provinces, as well as with Provincial Departments and no-profit organisations provided merSETA the opportunity to reach learners in rural areas and historically disadvantaged communities in urban areas.

TVET COLLEGE PARTNESHIPS

The merSETA, in response to the DHET's highest priority to strengthen and expand TVET colleges and turn them into attractive institutions of choice for school leavers as highlighted in the White Paper on Post School Education and Training, has increased and strengthened its partnerships with TVET colleges. The two main objectives of the TVET college partnerships are:

- **Raising the quality and responsiveness of TVET teaching, learning and assessments through:**
  a. TVET lecturer and leadership development.
  b. Exposing TVET lecturers to opportunities for self-reflection and increased competence through the use diagnostic instruments.
  c. Supporting TVET lecturer development through international skills transfer in fields of the "smart factory" linked to industry 4.0 and 3D printing technologies.
  d. Dual system apprenticeships approach to artisan development by linking TVET Colleges to workplaces for structured work-integrated- learning on a rotational plan.
  e. Increasing collaboration between industry/ employer associations and TVET colleges.
  f. Supporting the DHET in its program plans for the development of Colleges of Specialisation.
  g. Participating in the review of the NC(V) qualification in the interests of building alignment between the qualification and the needs of the mer-sector economy.
- **Facilitating access to WIL for TVET college graduates so that they can gain artisan status.**

Since 2015, merSETA has entered into partnerships with 39 TVET colleges. The majority of these partnerships focus on learning pathways towards learners progressing to become trade-tested artisans. The partnerships have a national TVET college footprint in all nine provinces, inclusive of colleges in rural areas. On completion of the National Vocational Certificate (NCV) in engineering studies, learners often have difficulty to find work due to a lack of work-integrated learning (WIL) during their studies. merSETA supports the NCV4 to artisan programme, partnering with TVET colleges to supplement institutional learning, participate in WIL qualify for trade testing. The aim is to qualify NCV learners as fully-fledged artisans over a period of 24 months.

The merSETA supports lecturers at TVET colleges through several of the partnership agreements, aimed at the professional development of the lecturers in engineering studies. The support provides lecturers, who are not trade-tested artisans, to spend a period of 18 months in merSETA industries with the option of a trade test post the WIL intervention. The aim is to strengthen the TVET colleges and industry relationships and expose lecturers to technologies, productivity and quality standards in industry.

Table 13: College Partnerships by Province

PROVINCE	COLLEGE
EASTERN CAPE	Buffalo City TVET College; East Cape Midlands TVET College; King Sabatha TVET College; Lovedale Public TVET College
FREE STATE	Flavius Mareka TVET College; Goldfields Public TVET College; Maluti TVET College; Motheo TVET College
GAUTENG	Ekurhuleni East TVET College; Ekurhuleni West TVET College; Sedibeng TVET College and Tshwane South TVET College
KWA-ZULU NATAL	Coastal KZN Public FET; Elangeni TVET College; Esayidi TVET College; Majuba TVET College; Umfolozi TVET College; Thekwini TVET College
LIMPOPO	Capricorn College; Lephalale Public TVET College; Mopani South East TVET College; Sekhukhune Public FET College; Letaba TVET College; Waterberg TVET College
MPUMALANGA	Ehlanzeni TVET College; Gert Sibande Public TVET College
NORTHERN CAPE	Northern Cape Urban FET College
NORTH WEST	Taletso TVET College; Vuselela TVET College; Orbit TVET College
WESTERN CAPE	Boland TVET College; College of Cape Town TVET; False Bay TVET College; Northlink College; West Coast TVET College; South Cape TVET College

Table 14: National and Provincial Government Partnerships

PARTNERSHIP	OBJECTIVE	PARTNER
Artisan training	To support the training of skills development initiatives relating to engineering and manufacturing industry related trades	National Department of Public Works; Gauteng Department of Education; Limpopo Provincial Government; Kwa-Zulu Natal Provincial Government; Mpumalanga Department of Public Works; Western Cape Department of Economic Development and Tourism; Department of Corrections Gauteng and Northern Cape; Mpumalanga Department of Education; North West Provincial Government; Department of Military Veterans; DENEL Aviation; Department of Basic Education Technical Schools
A new multi-year agreement for development of people in the Eastern Cape	To place P1 & 2 learners from Walter Sisulu UoT on WIL, support apprenticeships training, and support SME business development processes	Office of the Premier in the Eastern Cape
Development of SMEs, cooperatives and informal business	To support skills development initiatives relating to the engineering and manufacturing industry trades for SMMEs, cooperatives and non-levy paying companies in the informal sector	Department of Small Business Development
Training for retrenched workers and youth work seekers	To train retrenched workers and unemployed youth registered on the DoL ESSA database	UIF
Training Lay-off Scheme	To train workers of those companies that have been approved for the scheme whilst companies undergo business rescue/business improvement support in preparation for reverting to normal business operations	UIF (and merSETA companies in distress)
Development of fabrication hub at local level	To train learners on fabrication related skills programmes to support the development of a fabrication hub in the IDZ	Saldhana Industrial Development Zone
TVET leadership development	To support TVET leadership development in selected TVET colleges. In total, 15 TVET colleges are now benefiting from this programme.	British Council
Bursaries	To provide bursaries to HEI students studying towards engineering qualifications	NSFAS
Inter-SETA partnerships	Quality assurance of programmes that are cross sectored with Agriculture	Agri-SETA

Table 15: Partnerships with Higher Education Institutions

PARTNER	OBJECTIVE
Cape Peninsula University of Technology (based at SARETEC a research institution of CPUT)	To pilot one of the first renewable energy qualifications in the QCTO's qualifications framework – service technician qualification. Significant progress has been made. Industry and a TVET college are on board with the roll-out of this project.
Central University of Technology (including CUT Services and Enterprise Trust)	To support maths and science at schools throughout the Free State; capacity building of 6 TVET college lecturers; women in engineering; access programme for CUT engineering qualifications; development of app for career guidance; development of Tax Incentive app
Durban University of Technology	To fund Master's degree students and PhD students for merSETA research; Work Integrated learning (WIL) for engineering students; entrepreneurship training and supporting the formation of cooperatives for graduates; lecturer upgrading of university lecturers
Mangosuthu University of Technology	To support enterprise development and incubation by training unemployed graduates; human capital development of university staff to obtain competence at Master's degree and PhD level; alternative energy / green skills / innovation; WIL for engineering students
Nelson Mandela Metropolitan University (NMMU)	To support mathematics and science tutoring for Grades 10, 11 and 12; upgrading of two technical high school technical laboratories; Women in Engineering programme (WELA); maths and science tutoring for TVET colleges; the development of marine engineers with a three-year degree in marine engineering; capacity building in marine engineering, research and international bench-marking. The agreement is in support of implementing Oceans Operation Phakisa.
University of Western Cape	To support human resource capacity at the university; access and throughput in engineering disciplines through supporting mentorship of undergraduate students in mathematics and science (engineering-related); training of teaching assistants in the Extended Curriculum Programme at the university; post-graduate bursary support and video technology for the science faculty; development of TVET lecturers through Post Graduate Diploma in TVET; international and local HEI collaboration for supervision support offered to Masters and PhD studies in TVET.
Walter Sisulu University	To support the Engineering Faculty to improve its capacity to offer post graduate engineering programmes and find greater alignment of existing qualifications offered to merSETA employers : three work streams include: increasing qualifications of lecturing staff; realignment of engineering qualifications to needs of industry; and strengthening engineering related research capabilities.
University of Venda	Academic and skills development support for the HEI through learner support for rural learners in mathematics, science and technology; development of the next generation of academics in engineering; and capacity building at TVET colleges; Supporting 10 University lecturers in Masters and PHD programmes
University of Johannesburg	Piloting work-integrated learning for P1 & P2 engineering diploma students in collaboration with the development of incubator where-in UJ experiential learners will be placed at the incubation hub for small businesses at Resolution Circle (which provides services to industry, as well as product and process development); placement of UJ experiential learners for work-integrated learning at merSETA companies; scholarship for post graduate studies.
Tshwane University of Technology (TUT)	To support qualification development, industry-based research in new technologies, TVET lecturer development, women in engineering support and P1 and P1 WIL; establishment of Chair in Engineering - Identifying and supporting skills for technology gaps that will improve the competitiveness and sustainability of the South African manufacturing value chain. Masters, Doctoral and Post-doctoral candidates are to be hosted through this new research chair.
Science Park at the VUT	Supporting the Science Park at VUT through a multi-year agreement for: cutting edge technology in additive manufacturing; human capital development of university staff; R&D regarding alternative energy inclusive of biogas diesel engine into milk pasteurizing plant, photo voltaic; fuel cell systems and proton exchange membrane; learning incubator, and enterprise development and technology support for small township enterprises..
Wits University,	Masters, Doctoral and Post-doctoral academic program which seeks to integrate VET, industrial policy and evolutionary economics disciplines towards the new skills required by DHET for skills planning purposes through School of Education, Centre for Researching Education and Labour (REAL); Post Graduate Diploma for TVET lecturers and collaboration for Masters and PhD studies in TVET (REAL); WIL, bursaries, Masters and PhD; research skills development under the Faculty of Engineering.

The merSETA also has had successful partnerships with the Public Works Department and National Institute for the Deaf to train people with disabilities. Some of the learners through the partnerships with these organisations completed full artisanal qualifications.

The merSETA has supported the objectives of Worker Education as defined in the HRD-SA strategy through establishing partnership with unions active in its sector. The focus of the partnerships is to train labour skills development facilitators to effectively execute their function effectively in the interest of employees as worker representatives on training committees in companies.

New partnerships require additional attention through an integrated formalised approach to unpacking the key areas of development which require interventions through a formal partner relationship. Key committees within the merSETA have highlighted the need to better align with the white paper on partnerships and also align with partners in technical schools and community colleges.

4.2 PARTNERSHIP SUCCESSES

The role of partnerships in enabling the merSETA to meet and exceed some of its skills development goals cannot be overemphasised. Some of the successes are highlighted below.

Capacity development of TVET colleges through the TVET college leadership development including the partnership with British council: This programme is set to develop leadership capacity in TVET colleges. The selected TVET colleges have also benefited from an exchange programme with their counterparts in the United Kingdom.

Bursary support for the first cohort of TVET Lecturers on the new Post-Graduate Diploma TVET at the University of the Western Cape. The new TVET Lecturer qualifications were gazetted through the DHET in 2013 are now starting to be offered at Advanced Diploma and Post Graduate Diploma levels after accreditation and curriculum development at selected universities. These qualifications form a central pillar to the development of a new generation of TVET lecturer.

Increasing the artisan development pipeline through the NCV artisan training programme. This programme has offered NCV learners an alternative to becoming artisans, alternative to the traditional apprenticeship pathway.

Increasing the quality of artisan training through the dual system apprenticeships approach to artisan development: This is a national DHET project that links TVET Colleges to workplaces for structured work-integrated- learning on a rotational plan.

Successful placement of learners: The successful placement of learners in workplace has increased as a result of increased collaboration due to strong partnerships. The merSETA assists TVET colleges in placing learners by linking them directly with employers that provide workplace learning spaces.

Improved learner success rates: Completion rates have also been increased due to a strong learner support system formed as a result of increased collaboration due to strong partnerships between the merSETA, industry and TVET colleges. More than ever, learners can easily secure workplace learning with employers, a critical component for successful completion.

Increasing the throughput rate of engineering diploma students: This programme has contributed to the number of students gaining qualifications by accessing WIL, which is compulsory for completing the qualifications.

Increasing social partner collaboration: Partnerships have improved stakeholder participation by engaging industry associations, employer associations, organised labour, and sector bargaining councils to address bottlenecks in the system and work towards the mutual goals of increased levels of co-ordination and efficiency.

4.3 CHALLENGES EXPERIENCED WITH PARTNERSHIPS

Partnerships have presented the merSETA with some challenges that are worth mentioning. Through various interventions that will be discussed in the following section, merSETA has come up with innovative ways and best practices for dealing with these challenges. The challenges identified include:

Capacity development of TVET Colleges through the lecturer development artisan training programme. This programme has not been effective. Funding was made available for lecturers to be placed at the workplace as a way of improving the quality of teaching of technical and engineering courses. In addition, this was viewed as an opportunity for college lecturers to achieve artisan status. However, upon placement, a good number of lecturers demanded additional remuneration to their college salary for the workplace exposure. Furthermore, colleges did not have systems and resources for replacing lecturers engaged in the programme. As a result, there has been a low uptake of the programme.

There is a lack of administrative capacity in some TVET colleges. This is a serious challenge considering that partnerships require a lot of administration, which includes but is not limited to; finance management, procurement and reporting. Challenges such as late reporting, poor records management and poor finance management are some of the few examples of challenges the SETA has been confronted with.

The success of partnerships arguably depends to a large extent on good project management. Poor project management practices in some TVET colleges have added to the challenges the merSETA is facing. This has resulted in some projects failing to be completed on schedule without any valid reason, poor project reporting, and poor implementation and monitoring of projects.

The lack of technical capability or expertise within the TVET colleges has presented the merSETA with some serious challenges. There has been a tendency by some TVET colleges to outsource projects to external providers despite the fact that the expectations are that the TVET college will conduct the work and take ownership of the projects. The involvement of third parties has created some administrative and project management problems.

A lack of available and suitably qualified professors. Evidence from data collected through the assessment of some partnerships with universities has found that work programmes are also sometimes delayed by the lack of the availability of suitably qualified Professors (PhD/DPhil) to lead the programmes.

Low uptake of Masters and PhD scholarship. HEIs are not able to recruit at the rate required due to the challenge above, i.e. limited professor capacity to supervise post graduate Masters and PhDs. Overall, the merSETA is beginning to experience challenges with

regard to project management of partnerships. Firstly, this is due to the high number of partnership agreements that have been established, many of which are multifaceted, particularly the HEI and government partnerships. The multifaceted nature of these agreements means that different units of the organisations have responsibility for such partnerships depending on the planned outputs and outcomes. The merSETA thus recognises there is a need to have a coordinated approach to monitoring implementation of multifaceted partnerships. Furthermore, the merSETA has identified another challenge that partnerships need to be better conceptualised and prioritised and based on the strengths of potential partners to deliver successfully. Better conceptualisation will also enable the organisation to resource partnerships appropriately.

4.4 BEST PRACTICES IN STRENGTHENING PARTNERSHIPS

Good project management practices such as clear project conceptualisation, project finance management, project risk management and project time management are important to ensure the success of partnerships. Good project management results in the completion of projects within time and within the allocated resources. The risk of overspending or under-spending and project delays is therefore minimised. The merSETA will need to determine the level of good project management needed to ensure that the large portfolio of partnerships it has in place will be managed successfully and have the desired impact required for the mer-sector.

Monitoring and evaluation (M&E) is an important element that needs to be built into all partnership agreements. The merSETA is in the process of implementing an organisation-wide M&E framework to monitor and report on skills development interventions being implemented, organisational performance in general, as well as to assess the quality, effectiveness, efficiency, and impact of its learning programmes and projects including partnership agreements. The involvement and commitment of management and executive leadership is critical to ensure the success of partnerships. The merSETA management has established a protocol of establishing project steering committees and project work teams that include partners. The roles include project work teams monitoring and ensuring the implementation of partnership agreements, while the steering committees offer strategic guidance in the conceptualisation and implementation of partnerships through resources allocation; and, clarifying the goals and expectation of the partnerships.

The effective management of partnership contracts play a significant role in managing partnerships. Although there is contract management capability in the merSETA, there may be a need to review whether the current capability suffices, especially if merSETA is to ensure that deliverables are clearly articulated, as the clarity of roles for all parties involved in the partnerships; and to minimise the risk of misaligned expectations.

The role of industry in partnerships needs to be emphasised as it is the industry that provides workplace learning opportunities. Partnerships are therefore incomplete without the support of industry. There is agreement with the Chambers that inputs from employers and worker organisations in industry are acquired upfront during planning.

Furthermore, there is also a need to revisit the notion of the workplace, which more often than not is narrowly defined. This is especially problematic in rural areas where in some cases there is little or no presence of industry. Innovative approaches to providing workplace experience need to be explored in partnership with other relevant SETAs, local government as well as exploring innovative approaches to less cumbersome workplace experience within the SME sector.

4.5 CONCLUSION

This chapter has highlighted the partnerships which the merSETA currently has, as well as new partnerships which will further cement the merSETA's efforts for collaboration to close the skills gap. merSETA has seen many successes as a result of partnerships that have yielded tangible returns in the skills development arena, these include efforts to support teaching and learning at TVET Colleges; brokering relationships between the education sector and the private sector; improving quality of teaching and learning; and increasing learner success rates.

Partnerships are fraught with challenges. A major contributor to these is capacity or resource limitations in managing, implementing, monitoring and evaluating key outputs and milestones. To this end, the merSETA has endeavoured to implement measures to ensure successful outcomes of partnerships including putting in place steering committees; ensuring effective contract management through clearly defined deliverables and roles including financial management and ensuring that all parties are on board and committed from the time of inception.

It is critical however to ensure that the merSETA develops a guide to partnerships in order to strengthen the partnership model. Key to this, is how the merSETA, given its mandate defines partnerships and how it defines partners across the skills development space. In addition, the funding model for partnerships must be consolidated in order for the organisation to prioritise partnerships through discretionary funding. It is recommended that the merSETA in collaboration with current partners, the Accounting Authority and senior leadership engage in high level discussions to ensure a clear directive can be implemented to ensure that we meet the needs of the sector through partnering.

5 SKILLS PRIORITY ACTIONS

This chapter consolidates and presents the findings from previous chapters, which are reviewed in light of the current merSETA strategy and makes recommendations in terms of priority skills development actions. The first section of this chapter discusses the key strategic issues that arise from the analysis undertaken for this SSP. The discussion of key strategic issues is followed by an explanation of the merSETA's skills development priorities.

5.1 FINDINGS FROM PREVIOUS CHAPTERS

The SSP has highlighted key issues that must be considered for skills development in the manufacturing, engineering and related services sector. The sector profile highlighted key contextual elements that contribute to skills supply and demand issues. The sector is currently subjected to high volatility due to the economic climate and the structural changes within manufacturing. To remain relevant and competitive, firms tend to adopt higher tech-intensive and lowered labour-intensive manufacturing; coupled with global economic uncertainty this has resulted in job losses and business closures. This will impact the labour market such that more retrenched workers may resort to informal employment opportunities.

The sector at a high level seems to require trade support due to cross border trade and the high cost of doing business. This is compounded by the trend to increasing demand for higher level skills, even at entry level positions. Thus, workers need to acquire skills sets and be multi-skilled in order to access employment opportunities. As the sector evolves with newer and faster technologies, workers who are not up-skilled and re-skilled run the risk of becoming irrelevant in terms of the skills that they possess. Community development initiatives are needed to sustain decent livelihoods. The sector and indeed government and SETAs must recognise growth and development opportunities, particularly in sectors that have shown potential despite the difficult times.

The sector has seen a rise in the number of small and medium enterprises; this is possibly due to big business not being able to absorb as many workers from the labour market and the increasing trend to entrepreneurship amongst the youth. Small business needs support to be able to thrive and make employment opportunities available, particularly to young people. SETAs could also leverage more skills development opportunities through these organisations, ensuring that workplaces are made available for work based learning and higher employability. Transformation has remained slow as reflected in the sector profile. There needs to be more efforts to up-skill previously disadvantaged people, women and people with disabilities. The sector requires individuals with educational qualifications above NQF 4 if we are to meet the needs of future skills requirements as reported by the new industrial era and the move towards advanced manufacturing. Coupled with this is the need to ensure professionalisation of the sector.

In terms of skills issues highlighted in the SSP, the main skills driver is advancements in technology and the requirements of STEM, critical thinking and problem solving. Re-industrialisation will depend on these fundamentals being in place to ensure that the community advances with business in the future. Organisations in the sector must be made aware of the opportunities presented in the green and blue economies and the requisite skills required to take up those opportunities.

In terms of skills mismatches, the age-old argument of the education sector not producing the skills required by industry still prevails. A key focus here is that the quality of education is low and therefore the output of quality graduates is also low. Across all the sectors mentioned,

there is a tendency towards the majority of the workforce having semi or high level skills. The quality of provision is critical.

With the demand for high level skills comes the demand from those who possess high level skills for higher wages. We have noted the wage differential between high and low skill level occupations. As the sector goes through this structural change, opportunities will become available to those with the requisite skills and the wage differential should normalise over time with sectoral growth. These highly qualified workers do require particular support at post graduate level and training in specialised areas where there is a need for specialised skills sets. The sector has also indicated that skills sets make workers more agile, and thus better able to navigate the sector in terms of employment opportunities, even across other sectors as well.

5.2 RECOMMENDED ACTIONS ALGINED TO GROWTH AND DEVELOPMENT OF THE SECTOR

To ensure that the merSETA effectively delivers on its mandates given the findings outlined in the SSP, the following key action areas are highlighted:

Transformation in the sector – The issue of transformation is referred across most national strategies and plans including the IPAP, Comprehensive Rural Development Programme and HRD strategy. In essence, the sector remains largely untransformed in terms of ownership and characteristics of its workforce. Black people still remain under represented in top management with the majority still occupying elementary occupations. In support of government transformation imperatives, the merSETA needs to put in place mechanisms to support initiatives aimed at promoting transformation (e.g. supporting the black industrialists programme through relevant skills development interventions).

Advanced Manufacturing, Innovation and Growth – The merSETA sees it as an inherent part of skills development to ensure the sector develops relevant skills that will be absorbed into the labour market. Investing in research of new occupations and concomitant curriculum research and development is imperative to supporting the re-skilling and up skilling of workers to leverage opportunities presented by industry 4.0 and re-industrialisation efforts. Advanced manufacturing is critical in improving the global competitiveness, thus increased support for research, innovation and development capability of the sector is a priority in promoting the adoption of advanced manufacturing. Advanced manufacturing techniques and technology also call for the need to invest in high level artisanal and engineering professional skills.

Stabilising current industry and stemming job losses – The SSP has demonstrated that the current economy is turbulent with little expected recovery in the short term. The merSETA has a significant role to play in stabilising the manufacturing sector and stemming job losses through skills interventions that are drivers of innovation and competitiveness in the manufacturing sector.

Supporting opportunities for growth in the sector through SMME and informal sector support – The Small, Medium and informal sectors are central in supporting localisation as emphasised in the 2017/18 IPAP. The SMME and Informal sectors also have a significant role to play in employment creation and promoting transformation. The SMME can also play a major role in providing workplace based learning opportunities for learners.

Balancing the needs of the worker, the employer and national priorities – Promoting sustainable industrial growth, transformation and employment creation demands that the merSETA balances the needs of the worker, employers and national priorities. Challenges such

as jobless economic growth due to technology advances and lack of transformation will demand that the merSETA works closely with labour, HEIs, government and employers in coming up with sustainable solutions to address these constraints.

5.3 RECOMMENDATIONS FOR FOCUS OF SKILLS DEVELOPMENT PRIORITIES

The merSETA's skills development priorities take into account merSETA's mandate not only to the workers and employers of the manufacturing, engineering and related services industries, but also to national social and economic development objectives as outlined in relevant government policies and strategies.

Develop the sector Labour Market Intelligence System – promote and develop an institutional base for providing robust and reliable sector data by aligning internal ICT; best practice data analytics, management and governance; and, M&E with the requirements of credible research as well as implementing systematic development of research partnerships with HEIs and other research institutes and the development of knowledge management within the organisation.

Continued and increased focus on artisan development – includes pathways to changing and new artisan occupations supported by career guidance; involvement of relevant stakeholders in the planning and governance of qualifications and curriculum development; employer cooperation and scalable workplace learning; programmes and projects for strengthened relationships among TVET colleges and industry training centres; promoting artisan recognition of prior learning (ARPL); enhancing capacity of SMEs to offer artisan training; and exploring ICT based models for training.

Establish and facilitate strategic partnerships – engage with government, non-government, employer associations, labour organisations and bargaining councils for greater levels of coordination and efficiency for skills development interventions; and, pursue partnerships with local and international HEIs to ensure new ideas and research outcomes to benefit the sector

Increase flow of newly skilled workers into the sector – addressing skills shortages currently experienced whilst accommodating for planned growth, impact of technological changes and replacement demand; providing access to work experience opportunities; addressing transformation imperatives with respect to race, gender, class, geography, disability and age; and, increase to career guidance and development in rural areas

Develop the skills of the existing workforce – lifelong learning and creation of career pathways consistent with decent work, equity and sector economic growth; identifying occupational pathways for existing workers and those at risk of retrenchment and thus implementing up-skilling, re-skilling and trans-skilling; and, the provision of continuing education, post qualification programmes, continuous professional development and management development.

5.4 CONCLUSION

This chapter forms the conclusion of the 2017 update of the merSETA SSP for the period through to 2022. The skills development priorities identified by the merSETA represent the culmination of the sector analysis and stakeholder-consultation processes and are intended to guide the merSETA's strategic actions. The implementation of these skills development priorities should link to the range of inter-related strategic issues that arise from the sector analysis. The importance of appropriate local and regional level skills development to support the informal, emerging and SME sector has been noted.

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