



RELIABILITY

& MAINTENANCE WEEK

Dr Raymond Patel
CEO,



merSETA

MANUFACTURING, ENGINEERING
AND RELATED SERVICES SETA

**merSETA's perspective on the future of engineering
skills development in Southern Africa.**



The Mandate

To develop the skill of the South African workforce –

- 🌐 to improve the quality of life of workers, their prospect of work and labour mobility;
- 🌐 to improve productivity in the workplace and the competitiveness of employers;
- 🌐 to promote self-employment; and
- 🌐 to improve the delivery of social services

To increase the levels of investment in education and training in the labour market and to improve the return on that investment;

The Mandate ...

To encourage employers-

- 🎯 to use the workplace as an active learning environment;
- 🎯 to provide employees with the opportunities to acquire new skills;
- 🎯 to provide opportunities for new entrants to the labour market to gain work experience; and
- 🎯 to employ persons who find it difficult to be employed;

The Mandate

- 🌐 to encourage workers to participate in learnership and other training programmes;
- 🌐 to improve the employment prospects of persons previously disadvantaged by unfair discrimination and to redress those disadvantages through training and education;
- 🌐 to ensure the quality of education and training in and for the workplace;
- 🌐 to assist
 - work-seekers to find work;
 - retrenched workers to re-enter the labour market;
 - employers to find quality employees.

What is the merSETA

merSETA, the Manufacturing, Engineering and Related Services Education and Training Authority is one of the 23 SETAs established through the Skills Development Act [no. 97 of 1998].

It facilitates skills development for the following sub- sectors:

- 🎯 Metal and engineering,
- 🎯 Auto manufacturing,
- 🎯 Motor retail and component manufacturing,
- 🎯 Tyre manufacturing and
- 🎯 Plastics industries.

What is the merSETA (cont.)

Together the five sub-sectors comprise approximately 44 000 companies, with a workforce of approximately 600 000.

merSETA's Vision

Leaders in closing the skills gap.

Mission

To facilitate sustainable development of skills, transformation and accelerate growth in the manufacturing and related services sector.

The Problem

- The skills shortage has been identified both anecdotally and empirically.
- While this places special emphasis on the role of skills supply and the responsibility of various public and private institutional formations to deal with the challenge, private sector involvement is crucial in resolving the historical legacy.
- The Joint Initiative of Priority Skills Acquisition (JIPSA), identified a range of skills shortages which include:

- Lack of high-level, world-class engineering and planning skills for the ‘network industries’ – transport, communications and energy – which are all at the core of our infrastructural programme;
- Lack of artisan and technical skills, with priority attention to be given to these infrastructural building blocks;
- Poor teacher training for mathematics, science, information and communication technologies (ICT) and language competence in public education;
- Lack of specific skills required by the priority AsgiSA sectors starting with tourism and business processes; outsourcing and cross-cutting skills required by all sectors, especially finance; project managers and managers in general; and

- Lack of skills relevant to the local economic development requirements of municipalities, especially development economists.
- Survey data reveals that there is a significant gap between industry needs and the availability of a pool of readily available skills to fill this gap.
- In particular, the shortages in technical and trades skills, together with higher order critical skills such as
 - project management,
 - quality management and
 - supervision provide the context for skills needs in this sector,
- Which suggests that a stronger partnership between industry and tertiary institutions is required in order to ensure that supply responds to demand.

The definitions provided by the Department of Labour's Framework for Identifying & Monitoring Scarce & Critical Skills, was used as a guideline to specify scarce and critical skills. The definitions are identified below:

Scarce skills: Defined as 'those occupations in which there is a scarcity of qualified and experienced people, currently or anticipated in the future'.

Critical skills: Defined as 'specific key or generic and top-up skills within an occupation'. Critical skills include key or generic skills (including SAQA critical cross-field outcomes) e.g. cognitive, language, literacy and mathematical skills.

The Department of Labour guideline (referred to above) describes the possible reasons for skills scarcity.

Absolute scarcity

Absolute scarcity refers to situations in which suitably skilled people are not available, i.e., where there is a new or emerging occupation, or a complete lack of skilled people. Absolute scarcity also refers to situations where there is a replacement demand, i.e. there are no people enrolled or engaged in the process of acquiring the required skills in order to replace the current workforce.

Relative scarcity

Relative scarcity describes a situation in which skilled people are available, but do not meet other employment criteria. Sub-categories of relative scarcity include the following:

Geographical location, e.g. skilled people are unwilling to work outside urban areas; and

Equity considerations, i.e. skilled people are available, but do not meet the company's equity requirements.

- Replacement demand refers to those currently enrolled in education and training programmes and who are in the process of acquiring the necessary skills but are not available in the short-term to meet the replacement demand as it will take a number of years before they qualify.
- The list is also used to assist the SETA in the identification of skills development interventions, necessary as a response to the specified areas of skills shortage. The development of a scarce and critical skills list is therefore crucial in the quest for a demand-centred skills development delivery strategy.
- The notion of ‘priority skills’ (as used by JIPSA) is also used in this report. Priority skills, those that are required by the sector for resolution of immediate skills shortages, are the basis for this report and the discussion around skills requirements. We also use the term ‘Priority skills’ to reflect the skills needs deemed most pressing by those within the sector. This might incorporate both scarce and critical categories.

EMPLOYMENT TRENDS AND SCENARIOS IN THE MERSETA SECTOR

Sectors	October-December 2008	October-December 2009	Year-on-Year change
Agriculture	764 000	615 000	-149 000
Mining	321 000	296 000	-25 000
Manufacturing	1 944 000	1 742 000	-202 000
Utilities	86 000	98 000	12 000
Construction	1 191 000	1 085 000	-106 000
Trade	3 164 000	2 873 000	-291 000
Transport	774 000	739 000	-35 000
Finance	1 636 000	1 759 000	123 000
Community and social services	2 661 000	2 628 000	-33 000
Private households	1 298 000	1 135 000	-163 000
Total	13 844 000	12 974 000	-870 000

AUTO: EMPLOYMENT TRENDS AND FORECAST

The Industrial Policy Action Plan anticipates that R23 billion will be invested in the “automotive” industry (which for their purposes includes new vehicle assembly, automotive component manufacturing as well as new tyre manufacturing).

This is aimed at more than doubling the output of new vehicles produced in South Africa each year to a total of 1.2 million new vehicles per annum. The strategy is forecast to create at least 160 000 new jobs. NAACAM itself estimates that there will be “at least” 50 – 60% more jobs in the sector as a result of the strategy.

Independently of the IPAP analyses, merSETA has undertaken a labour market forecast. The formula used is as follows.

We have done a simple extrapolation from projected economic growth in the industry to employment growth. Thus the auto sector currently employs roughly 131 000 people, and is projected to grow at between 5 - 7% per annum over the next five years.

At the low end of the forecast, this would translate into 6 550 new jobs per annum between 2010 and 2015, or 32 750 new jobs in total.

We are aware that this figure does not reflect spare capacity which companies might have; or productivity improvements; or “labour elasticity coefficients”, in terms of which increases in wages would impact on the number of jobs created. The figure is a general indicative forecast, intended to guide discussion and planning in the sector.

AUTO EMPLOYMENT TRENDS AND FORECAST

The table reflects current employment figures as A; future employment in five years time as B; the difference between the two as C (thus $A - B = C$). Replacement demand is given as D, and the total skills demand as E (thus $E = C + D$).

Comparison between total number of positions that need to be filled and the output of total number of graduates 2010 - 2015 (automotive sector)									
Growth rate scenario	Total employed		Growth Demand	Demand due to replacement demand needs	Total number of new positions to be filled	Annual new graduates	% supply	Difference between demand and supply	
	2010	2015						2010 - 2015	2010 - 2015
	A	B	C = B-A	D	E = C + D				
5% growth forecast p.a.	131 000	163 750	32 750	32 750	65 500				

Occupation band	% people currently employed in this band	Number of new employees anticipated in this band
Senior officials	6.1%	3 995
Professionals	3.2%	2 096
Technicians	8.4%	5 502
Clerks	10.6%	6 943
Sales	6.4%	4 192
Agriculture	3.5%	2 293
Clerks	10.0%	6 550
Operators	34.4%	22 532
Labourers	17.7%	11 594
TOTAL	100%	65 500

MOTOR: EMPLOYMENT TRENDS AND FORECAST

The identical formula for calculating the total employment growth and replacement demand – used in the case of the automotive industry above – has been used in estimating the demands in the tables provided for the motor industry below.

Comparison between total number of positions that need to be filled and the output of total number of graduates 2010 – 2015

Growth rate scenario	Total employed		Growth Demand	Demand due to replacement demand needs	Total number of new positions to be filled	Annual new graduates	% supply	Difference between demand and supply	
	2010	2015	2010 - 2015	2010 - 2015				Number	%
	A	B	C = B-A	D	E = C + D				
5% growth forecast p.a.	200 000	250 000	50 000	25 000	75 000				

NEW TYRE: EMPLOYMENT TRENDS AND FORECAST

Comparison between total number of positions that need to be filled and the output of total number of graduates 2010 - 2015									
Growth rate scenario	Total employed		Growth demand	Demand due to replacement demand needs	Total number of new positions to be filled	Annual new graduates	% supply	Difference between demand and supply	
	2010	2015	2010 - 2015	2010 - 2015				Number	%
	A	B	C = B-A	D	E = C + D				
5% growth forecast p.a.	6 000	7 500	1 500	1 500	3 000				

NEW TYRE: EMPLOYMENT TRENDS AND FORECAST

Occupation band	% people currently employed in this band	Number of new employees anticipated in this band
Senior officials	6.1%	183
Professionals	3.2%	96
Technicians	8.4%	252
Clerks	10.6%	318
Sales	6.4%	192
Agriculture	3.5%	105
Clerks	10.0%	300
Operators	34.4%	1 032
Labourers	17.7%	531
TOTAL	100%	3 600

METALS: EMPLOYMENT TRENDS AND FORECAST

In metals, according to the DTI (2005), employment opportunities tend to be low at Stage 2, that is, the milling stage, but can be very high at the mass semi manufacturing and final production and machinery building stages. Stages 2 and 3 tend to be capital intensive with low employment output ratios.

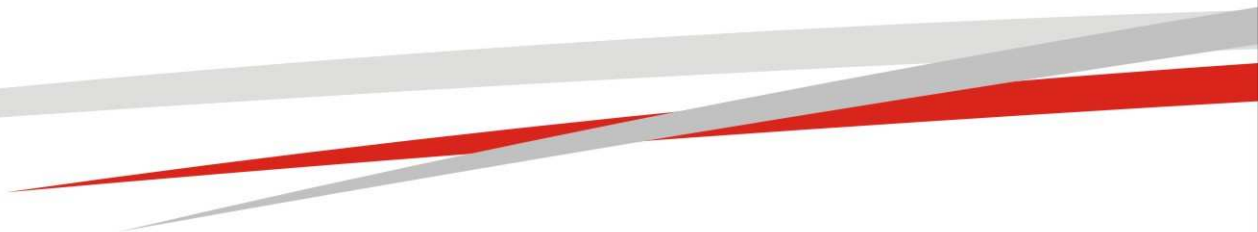
However, the finished product and machine building stage, Stage 4, is much more labour intensive. Most investment has been made in the steel production stage and has registered high growth rates – and yet a reduction in the labour force.

The foundry industries have seen a decline in the number of firms from 450 in the early 1980s to just over 200 in 2003 even though the foundry industry is crucial to the most of the manufacturing industries including the automotive and tooling industries. Currently, very little metal beneficiation is carried through to Stage 4 where the potential for employment growth is possible.

Employment levels 1996-2005

Industry (aligned to stages)	96	97	98	99	2000	01	02	03	04	05	Comment
Basic iron and steel (Stage2)	77921	73791	67113	59977	50773	51717	52541	53025	53295	52172	Decline - not matching higher investment levels ref. table 1.1. above
Metal products (Stage 3)	108957	106549	100769	91964	89746	89710	93667	95856	99561	98733	Decline 96-2001 and increase 2002-2005 but not to 96-2001 levels
Machinery and equipment (Stage 4)	93731	92117	90198	89865	86755	88877	92796	94982	99320	102304	Decline 96-2001 and increase 2002-2005 and higher than 96- 2001 levels
Electrical machinery (Stage 4)	58094	54706	54444	49078	47333	42997	40937	38536	38630	40545	Decline 96-2001 and increase 2002-2005 but not to 96 - 2001 levels

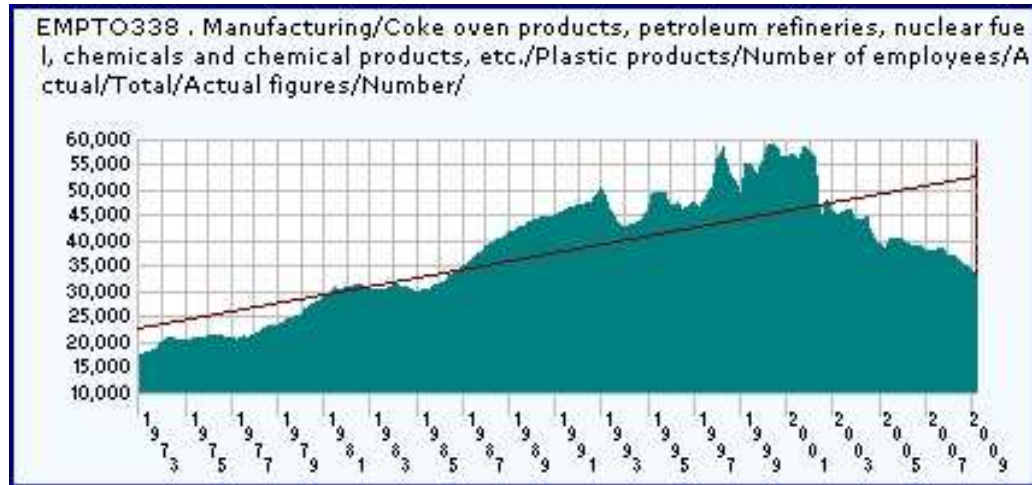
Year	Managers	Professional	Technicians/Trades	Operators	Elementary
1999	21093	8090	92468	76298	76886
2005	26143	4166	134923	94962	47202
% of change	24	-49	41.5	24	-9



Comparison between total number of positions that need to be filled and the output of total number of graduates 2010 - 2015									
Growth rate scenario	Total employed		Growth Demand	Demand due to replacement needs	Total number of new positions to be filled	Annual new graduates	% supply	Difference between demand and supply	
	2010	2015	2010 - 2015	2010 - 2015				Number	%
	A	B	C = B-A	D	E = C + D				
5% growth forecast p.a.	312 205	390 255	78 050	78 050	156 100				

Occupation band	% people currently employed in this band	Number of new employees anticipated in this band
Senior officials	6.1%	9 522
Professionals	3.2%	4 995
Technicians	8.4%	1 311
Clerks	10.6%	16 547
Sales	6.4%	9 990
Agriculture	3.5%	5 463
Clerks	10.0%	15 610
Operators	34.4%	53 698
Labourers	17.7%	27 630
TOTAL	100%	156 100

PLASTICS :EMPLOYMENT TRENDS AND FORECASTS



Comparison between total number of positions that need to be filled and the output of total number of graduates 2010-2015 (plastics industry)

Comparison between total number of positions that need to be filled and the output of total number of graduates 2010 - 2015									
Growth rate scenario	Total employed		Growth Demand	Demand due to replacement demand needs	Total number of new positions to be filled	Annual new graduates	% supply	Difference between demand and supply	
	2010	2015	2010 - 2015	2010 - 2015				Number	%
	A	B	C = B-A	D	E = C + D				
Average 4% growth forecast p.a.	52 250	62 700	10 450	13 062	23 512				

Occupation band	% people currently employed in this band	Number of new employees anticipated in this band
Senior officials	6.1%	1 434
Professionals	3.2%	752
Technicians	8.4%	1 975
Clerks	10.6%	2 493
Sales	6.4%	1 505
Agriculture	3.5%	823
Clerks	10.0%	2 351
Operators	34.4%	8 088
Labourers	17.7%	4 162
TOTAL	100%	23 512

Metal scarce skills list

OFO Code	Major Category	Occupation	Description	Specialisation	Demand	% Share of total
712101	Machinery Operators and Drivers	Crane, Hoist or Lift Operator (Skill Level 2)	Mobile Plant Operator	Includes but not exclusive to Forklift Driving	7 000	40
323201	Technicians and Trade Workers	Fitter (General) (Skill Level 3)	Fitter (General)	CNC (Computer Numeric Control Operator)/Diesel Fitter/Engineering Fitter/Fitter Machinist/Fitter Machinist/General Mechanical Engineering Trades Workers/Mechanic (Diesel and Heavy Earthmoving Equipment)/Machine Setter/Mechanic/Maintenance Fitter/Pump Fitter	2 500	14
322303	Technicians and Trade Workers	Welder / Welder (First Class) (Skill Level 3)	Welder/Welder (First Class)	Template Maker/Welding/Welding Tradesperson	1 500	9
323402	Technicians and Trade Workers	Toolmaker (Skill Level 3)	Toolmaker	Die Castor/Die Cutter-Maker/Jig maker/Press-Tool maker/Tool Jig and Die Maker/Tool and/or Die Maker	1 500	9
712301	Machinery Operators and Drivers	Engineering Production Systems Worker (Skill Level 2)	Metal Production Operator	Level 4	1 500	9
839101	Elementary Workers	Metal Engineering Process Worker (Skill Level 1)	Metal Engineering Process Worker/Product Examiner	Foundry Worker	1 500	9
322301	Technicians and Trade Workers	Metal Fabricator (Skill Level 3)	Metal Fabricator (Coded Welder Boilermaker)	Fabrication Engineer (Welding)/Heavy Fabrication Engineer/Metal Fabricator/Structural Steel Tradesperson	1 200	7
399704	Technicians and Trade Workers	Metal Manufacturing Machine Setter and Minder (Skill Level 3)	Technical Operator	Monitors and controls mechanical and operational efficiency of production facilities, equipment, plant and related resources in the production of metals.	4000	23
323501	Technicians and Trade Workers	Millwright (Skill Level 3)	Millwright (Electromechanician)		700	4
322201	Technicians and Trade Workers	Sheet Metal Trades Worker (Skill Level 3)	Sheet Metal Trades Worker	Sheet metal engineer/patternmaker/process worker	500	3

Metal scarce skills list

OFO Code	Major Category	Occupation	Description	Specialisation	Demand	% Share of total
323204	Technicians and Trade Workers	Metal Machinist (First Class) (Skill Level 3)	Metal Machinist (Turner Machinist)	Metal Machine Setter/Metal Turner	500	3
323202	Technicians and Trade Workers	Fitter and Turner (Skill Level 3)	Fitter and Turner		400	2
341101	Technicians and Trade Workers	Electrician (General) (Skill Level 3)	Electrician		400	2
342101	Technicians and Trade Workers	Air-conditioning and Refrigeration Technician (Skill Level 3)	Air condition, Refrigeration & ventilation		400	2
133502	Managers	Production / Operations Manager (Manufacturing) (Skill Level 5)	Production/Operations Manager		200	1
322105	Technicians and Trade Workers	Metal Polisher (Skill Level 3)	Metal Polisher	Electro Polisher/Metal Cleaner/Finisher/Aluminium Stainless Steel Fabricator/Metal Spnner/Sheeter/Metal work Specialist	200	1
341103	Technicians and Trade Workers	Lift Mechanic (Skill Level 3)	Lift Mechanic		200	1
342304	Technicians and Trade Workers	Electronic Instrument Trades Worker (General) (Skill Level 3)	Instrument Mechanician		200	1
334101	Technicians and Trade Workers	Plumber (General) (Skill Level 3)	Pipe Fitter	Pipe Fitter descriptor: Install and maintains water, air, hydraulic and high pressure pipes and pipe systems.	80	0
821704	Elementary Workers	Structural Steel Erector (Skill Level 2)	Steel Erectors	Rigging	80	0
323304	Technicians and Trade Workers	Precision Instrument Maker and Repairer (Skill Level 3)	Precision Instrument maker and repairer (SL3)	Scale Technician	50	0
331101	Technicians and Trade Workers	Bricklayer (Skill Level 3)	Refractory Mason		30	0

Occupation	Sum of Demand	Sum of % Share of total
Metal Manufacturing Machine Setter and Minder (Skill Level 3)	4000	23
Millwright (Skill Level 3)	700	4
Sheet Metal Trades Worker (Skill Level 3)	500	3
Metal Machinist (First Class) (Skill Level 3)	500	3
Electrician (General) (Skill Level 3)	400	2
Air-conditioning and Refrigeration Technician (Skill Level 3)	400	2
Fitter and Turner (Skill Level 3)	400	2
Lift Mechanic (Skill Level 3)	200	1
Metal Polisher (Skill Level 3)	200	1
Production / Operations Manager (Manufacturing) (Skill Level 5)	200	1
Electronic Instrument Trades Worker (General) (Skill Level 3)	200	1

An overview of skills shortage trends in merSETA

METAL			
OFO Code	Occupation	Demand	% Share of total
712101	Crane, Hoist or Lift Operator (Skill Level 2)	7 000	40
323201	Fitter (General) (Skill Level 3)	2 500	14

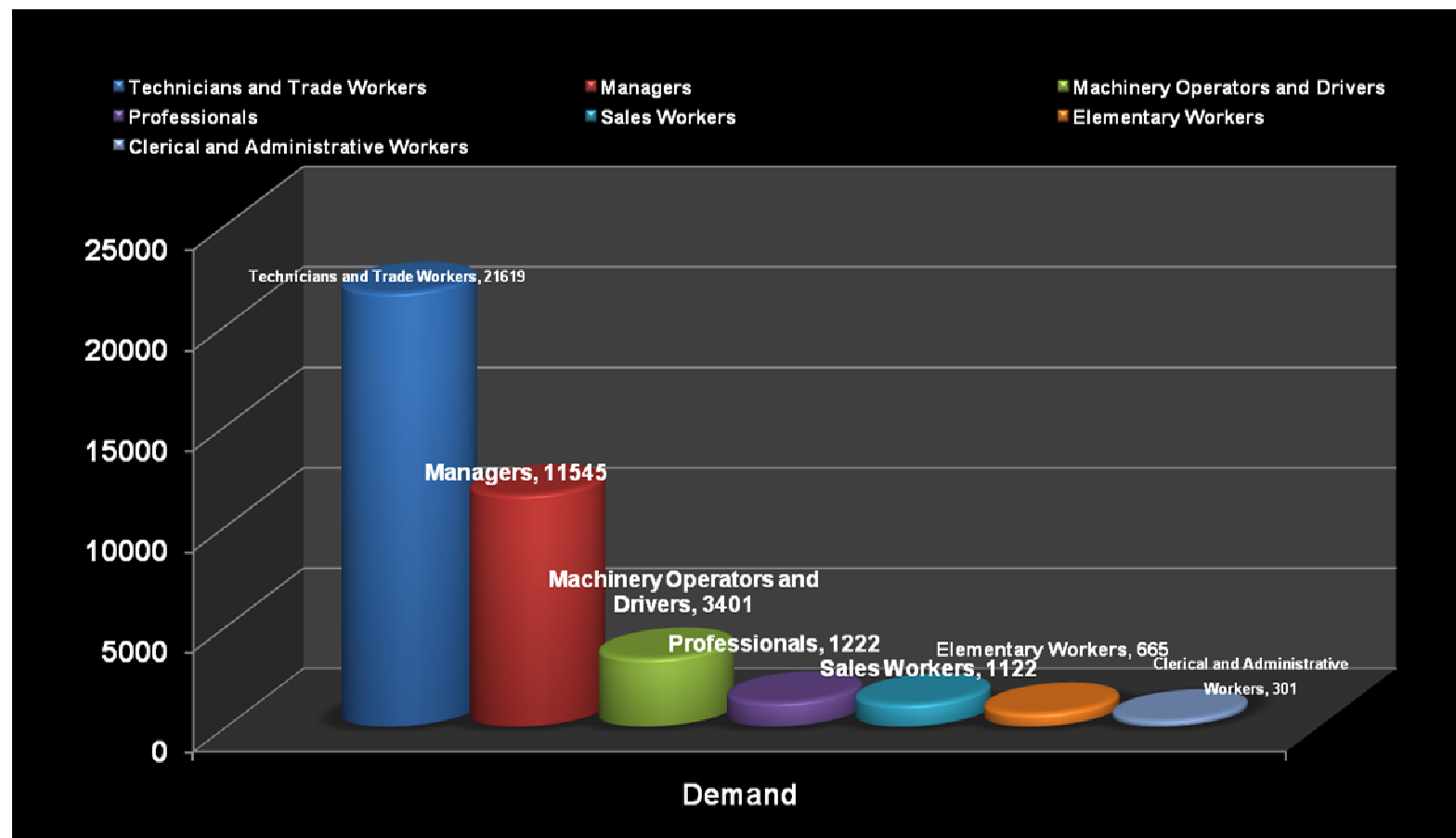
MOTOR			
OFO Code	Occupation	Demand	% Share of total
136202	Small Business Managers (Skill Level 4)	5760	23
321201	Automotive Motor Mechanic (Skill Level 3)	4500	18

AUTO			
OFO Code	Occupation	Demand	% Share of total
321201	Automotive Motor Mechanic (Skill Level 3)	217	24
323502	Mechatronics Technician (Skill Level 3)	214	23

NEW TYRE			
OFO Code	Occupation	Demand	% Share of total
711507	Rubber Production Machine Operator (Skill Level 2)	165	24
711513	Rubber Production Machine Operator (Skill Level 2)	55	8

PLASTICS			
OFO Code	Occupation	Demand	% Share of total
711504	Plastics Production Machine Operator (General) (Skill Level 2)	2000	22.47%
839201	Plastics and Composites Factory Worker (Skill Level 1)	1500	16.85%

Sector Analysis: Demand by Major category



THANK YOU

22-24 November 2010, Johannesburg

