



LABOUR MARKET
INTELLIGENCE PARTNERSHIP

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UPDATE 2016

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The **Labour Market Intelligence Partnership**

is a collaboration between government and a national research consortium that aims to build a credible institutional mechanism for skills planning and development in South Africa.



The Department of Higher Education and Training (DHET) contracted the Human Sciences Research Council (HSRC) to lead the research consortium in support of the goal of developing a mechanism for skills planning.

Message from the Director-General, Department of Higher Education and Training

It is my pleasure to present to you the first report on skills supply and demand in South Africa. The Department of Higher Education and Training has identified the provision of credible information, analysis and signals on the demand and supply of skills as an important contribution to the establishment of the institutional mechanism for skills planning in South Africa.

This report is a product of the Labour Market Intelligence Partnership, which is undertaken by a consortium of research organisations led by the Human Sciences Research Council, in partnership with the Department.

The report is an important resource to inform the planning and provisioning of education and training, as well as to assist individuals to make appropriate career and educational choices. The report is expected to contribute to the improvement of the responsiveness of the post-school education and training system to the needs of the economy and society more broadly, by supporting decision-making

on matters pertaining to skills planning. It is expected to be used as a strategic resource to inform supply-side planning in post-school education and training, particularly in relation to the allocation of funds, development of strategies and prioritisation, development of qualifications and programmes that are relevant to the needs of the labour market and information for career development.

It is hoped that planners, funders, policy makers, education and training institutions, skills development providers, employers as well as the media will use this report to guide them on matters pertaining to skills planning and the provision of education and training.

The Department will strive to improve the accuracy of this report and be more responsive to stakeholders' needs. Your feedback, including suggestions for improvement, can be emailed to khuluvhe.m@dhet.gov.za.

Mr GF Qonde

Director-General: Department of Higher Education and Training

Message from the Labour Market Intelligence Partnership Director

The LMIP Update 2016 provides a summary of the recently published *Skills Supply and Demand in South Africa* report authored by Vijay Reddy, Haroon Borhat, Marcus Powell, Mariette Visser and Fabian Arends. The purpose of conducting the skills supply and demand analysis is to estimate and anticipate the education and skills required to support societal development, and a productive and inclusive economic growth path. Since 1994, there have been efforts to plan for skills needs, but these efforts have been fragmented and the performance of the skills planning mechanism has been imperfect, as evidenced by continued skills shortages. There is, therefore, a need for a more coordinated, coherent, and responsive skills planning system. In 2009, the South African government prioritised skills planning through government priority Outcome 5.1.1 to 'establish a credible institutional mechanism for skills planning' (DHET, 2010).

To meet the Outcome 5.1.1 objectives, in 2012 the Department of Higher Education and Training (DHET) initiated a collaboration with an HSRC-led consortium (Human Sciences Research Council, University of Cape Town and University of the Witwatersrand) to establish the Labour Market Intelligence Partnership (LMIP) project. In 2012, when Minister Nzimande launched the LMIP, he requested that it provide a scientific basis to 'set up systems for reliable data indicating skills need, supply and demand in our labour market in a manner that [would]

enable our country, including government and businesses, to plan better for the human resources development needs of our country'.

One of the research projects of the LMIP was to propose a framework and set of indicators for skills planning, which then informed the Government Gazette, No. 39319, 23 October 2015, *The Framework for the Annual Report on Skills Supply and Demand in South Africa* (RSA, 2015). This framework formed the basis for the report on *Skills Supply and Demand in South Africa*.

Internationally, debates around the responses and policy reform for skills development have tended to focus on one of two approaches: matching transitions of economic growth with types of skills, or moving towards a higher growth trajectory characterised by increased investment in higher-level skills. The matching-transitions debate tends to draw on lessons from East Asian economies and how the transitions in growth stages from agriculture to the manufacturing and services sector should be accompanied by corresponding changes in the types of skills developed as the country moves up the value chain. Debates surrounding the high skill trajectory have come from European countries, especially Britain and other English-speaking countries, where discourse has focused on how to move or maintain a high-skilled path to development, particularly in the light of competition from other middle-income countries.

Locally, we need to develop an approach to skills planning that is relevant to the South African context. In 2014, the South African population of 54 million was made up of 51% females. The population was 80% Africans, 9% coloureds, 8.5% whites and 2.5% Indians/Asians. South Africa is a youthful country, with two-thirds of the population under the age of 35 years. As is the case with other low-income countries, there is a youth bulge, with one-third of the population being between the ages of 15 and 34 years. There were 22 million people of working age, and, of these, 15 million were employed and 8 million were not. Close to three-quarters of the employed population and 90% of unemployed persons are African. Two-thirds of the employed reside in provinces that are economic powerhouses, namely Gauteng, the Western Cape and KwaZulu-Natal. While the education levels of the population have been improving, the highest level of education among the South African population is still low when compared with other emerging economies. The OECD report, *Education at a Glance, 2014*, reported that, among the countries compared, South Africa has one of the lowest levels of tertiary education in its population. While poverty levels have decreased since 1994, there is still a high number of South Africans living in poverty. StatsSA (2016) reported that 21.5% of the population were living below the 'extreme poverty line' in 2014. South Africa's income inequality, as measured by the Gini coefficient, is consistently between the values

of 0.66 and 0.69, making it one of the most unequal countries in the world (StatsSA, 2014).

The effects of the historical legacy of apartheid and disadvantage experienced continue to bedevil our society, especially the African population group. South Africa faces 'the triple challenges of poverty, inequality and unemployment'. Given this unique context, the LMIP developed a skills planning approach and model that is appropriate and relevant to the South African context and realities. The *Skills Supply and Demand in South Africa* report and the LMIP Update 2016 present this analysis. The information and intelligence generated in this report should inform skills policy and skills planning. This exploratory report must be viewed as a prototype and will be refined through future iterations. The engagements from these reports will also inform the refinement of the report structure and methodologies for

future analyses in order to produce subsequent reports on skills supply and demand in South Africa.

Writing the *Skills Supply and Demand in South Africa* report was a massive exercise and included engagements amongst the authors, with DHET officials, as well as with researchers and practitioners in the skills policy field. We would like to thank all for the constructive and robust engagements in developing an approach and a model for skills planning, skills supply and skills demand in South Africa.¹

Dr Vijay Reddy
Executive Director, Education and Skills
Development Research Programme
Human Sciences Research Council

¹ I would also like to thank Dr Andrea Juan of the HSRC for constructing the infographics.

Introduction

The LMIP Update 2016 provides a summary of the recently published *Skills Supply and Demand in South Africa* report authored by Vijay Reddy, Haroon Borhat, Marcus Powell, Mariette Visser and Fabian Arends (full report available on lmip.org.za). The purpose of this report is to provide a holistic understanding of the current supply and demand for skills in South Africa, and the report represents one of the first attempts to analyse how the two interact to inform future skills policy in order to support an inclusive economic growth path. The analytical approach used in the report represents a radical departure from manpower forecasting and attempts to understand the complexities and intricacies around how supply

and demand interact in the South African society and economy, and then to draw out the corresponding implications for reform.

In this approach, signals on current and intermediate demand for skilled, semi-skilled and low-skilled occupations are interpreted. An understanding of skills demand involved an exploration of three interrelated aspects: the characteristics of the employed and unemployed who make up the labour force; the state of the economy; and current and intermediate demand from the analysis of changes in the structure of employment. We juxtaposed the signals of demand against the supply of skills coming out of the formal

school education system, the post-secondary education and training systems, and also the workplace. The interaction between supply and demand provides the basis for interpreting signals on the nature and extent of skills shortages and mismatches facing South Africa. Only through understanding the complexities of how demand and supply interact is it possible to guide future investment and interventions, as well as support a move towards a more inclusive skills development path. Figure 1 and Table 1 provide a schematic representation of the LMIP framework and approach for the analysis of skills supply, demand and mismatch.

Figure 1: Framework for the analysis of skills supply, demand and mismatches

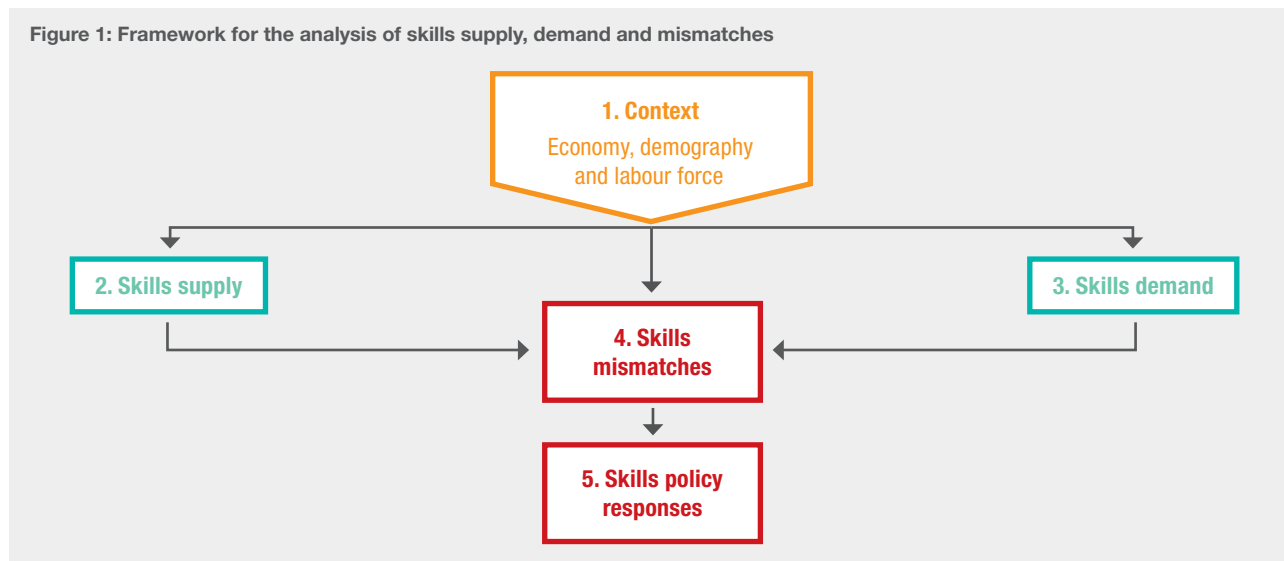


Table 1: The skills supply and demand framework, the content, and the analysis focus

Element	Content	Analysis Focus
The economy	Economic performance and structural and policy constraints that impede the country's progress towards inclusive growth.	Analysis of national and sectoral GDP growth rates, employment trends and employment growth by sector, investments and savings, export growth and diversification patterns.
The labour force	The two major challenges are to grow the skills and capability levels of the workforce which started from a low base and to reduce unemployment levels.	Characteristics of the employed and unemployed. The demographics of spatial location, gender, racial group, age, and education level for both groups.
Skills demand	Changes in the structure of employment and skills to provide signals of skills demand.	Employment changes in sectors and occupations, skills needed to support government growth projects, employers' perceptions of skills needed in their firms, and the list of occupations in high demand.
Skills supply	This provides the basis for identifying the types of skills that people acquire when they move through the education system and enter the labour market.	Skills from the schooling sector, the TVET sector, and the university sector. Focuses on trends in enrolment and completion rates for each educational level.
Skills mismatches	The skills of the workforce must match those required by employers, the skills produced by the education system must respond to market demand, and the type of jobs must respond to the skills set of the labour force.	<i>Demand mismatch</i> examines the shape and trajectory of the economy, the types of jobs that are being created, and the skills set and expectations of the working-age population. <i>Educational supply mismatch</i> examines how supply responds to areas of skills demand. <i>Qualification-job mismatch</i> examines the qualification gaps for skilled jobs and then traces the sectors and occupations that the educational qualifications are absorbed into.
Skills policy responses	We need contextually appropriate models for skills planning that take into account the challenges of economic growth and inclusive development in South Africa. Skills planning must take into account past structural inequalities on the basis of race, gender and spatial location. The policy dilemma is how to respond to seemingly paradoxical imperatives given the diverse sets of development pathways.	The policy-reform agenda must consider how to respond to skills demands and mismatches for different groups; initiate wider reforms in the education and training system; raise demand to support employment growth; raise skill levels in targeted sectors of the economy; as well as respond to the development trajectory being followed by South Africa.

The economy

The state of the South African economy and the structural and policy constraints provide the context in which skills planning is embedded. Since 1994, the South African economy has been characterised by positive but low levels of economic growth, persistently high levels of unemployment, and rising household income inequality. Between 1994 and 2007, the economy grew at an average rate of 3.6%. The South African economy was, however, heavily affected by the global financial crisis in 2007, and, between 2008 and 2014, average growth stood at 1.9%. The low and volatile growth rates experienced since 1994 reflect an economy that has become vulnerable to

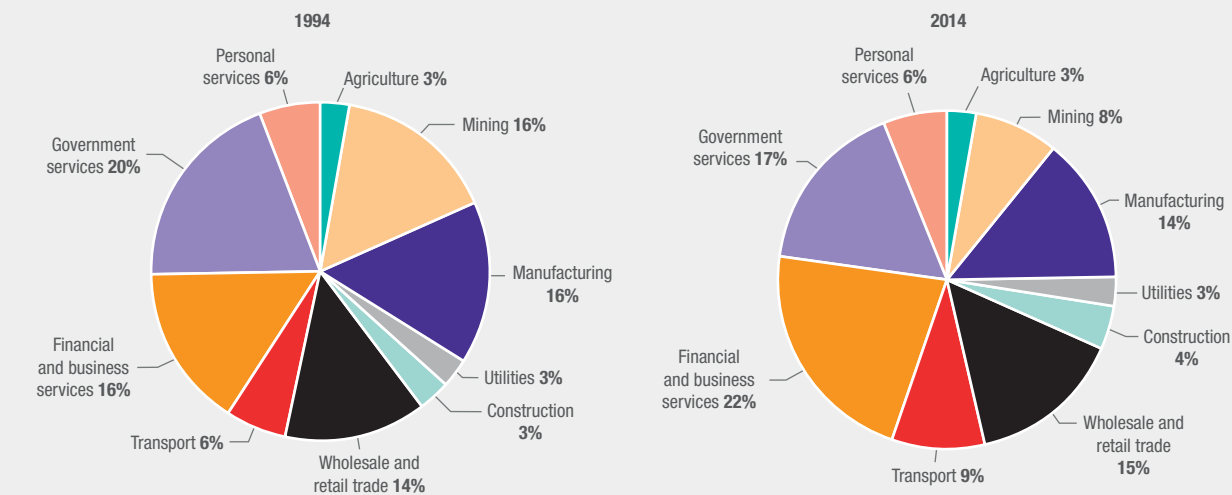
external shocks, and one that remains largely driven by trends in global growth and demand.

Economic growth in post-apartheid South Africa, while modest, has been driven largely by capital-intensive industries, retail trade, and financial services rather than productive and labour-intensive sectors such as agriculture and manufacturing (see Figure 2). The contribution of mining to gross domestic product (GDP) declined significantly from 16% to 8%, while the manufacturing sector's share of GDP declined from 16% in 1994 to 14% in 2014. The contribution of agriculture to GDP remained stagnant, while the share

of GDP held by the financial and business services sector grew substantially from 17% to 22% over the period. These changes have essentially generated a growth path starved of regular, low-wage jobs. Into this growth lacuna, output generation has been forced into a high skills-biased employment trajectory dependent on the financial services sector for growth, and the retail and public sectors for jobs.

The growth and employment trajectory can be seen in the interaction between the sectoral contribution to GDP and employment growth, as shown in Figure 3. Each bubble represents a sector, and the size of the bubble indicates

Figure 2: Sectoral contribution to GDP, 1994 and 2014



Source: Statistics South Africa (2016)

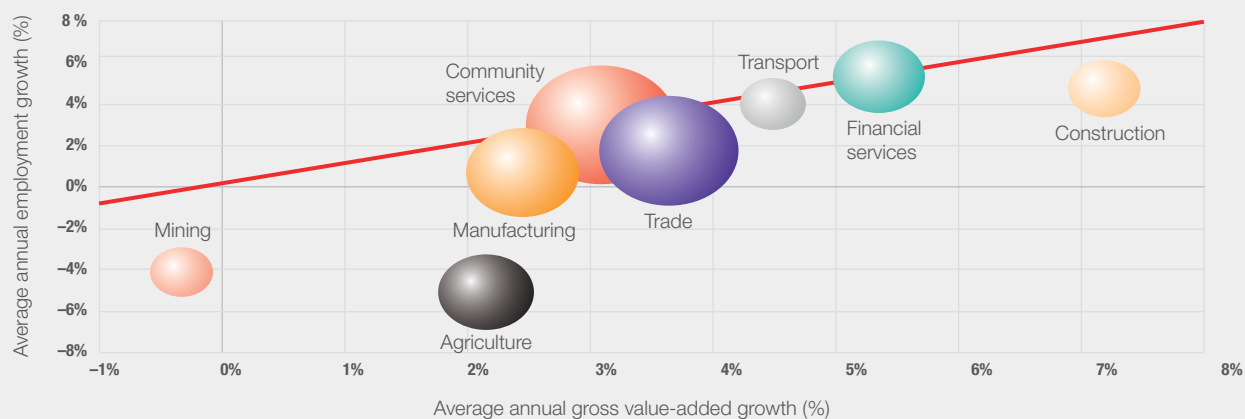
the relative size of employment in that sector in 2001. The coordinates of the centre of each bubble therefore indicate the sector's output and employment growth over the period. Bubbles above the 45-degree line show sectors whose employment growth exceeded output growth, and vice versa for bubbles below the line. Sectors with positive output growth are expected to have positive employment growth, while declining sectors are expected to shed jobs (Bhorat et al, 2014).

Specifically, no sectors are above the 45-degree line, indicating that employment growth was less than output growth for all sectors of the economy for the period 2001 to 2012. Mining and agriculture fared particularly poorly during

the period: output growth was negative for mining (-0.3%) and a low positive for agriculture (2.2%); and employment declined considerably, falling by 4.1% in the mining sector, and by 5.1% in the agriculture sector. Employment growth in the manufacturing sector was near zero over the period, despite a positive output growth rate of 2.4%. Conversely, the construction and financial services sectors showed relatively high output and employment growth during the period. The growth in the secondary and tertiary sectors has not been sufficient to absorb new entrants into the labour market, including those who have lost jobs in the agriculture and mining sectors since 2001.

One of the key deleterious consequences of South Africa's low and volatile growth rates is the poor outcomes in the labour market, particularly for low-skilled workers and previously disadvantaged racial groups. Employment growth since the end of apartheid has not been sufficient to absorb the rapidly growing supply of workers: the economy generated 5.6 million jobs between 1995 and 2014, while the labour force grew by almost twice this quantum, resulting in 9.8 million new entrants into the labour market. A consequence of labour force growth in excess of employment growth over the period was a large expansion in the number of unemployed individuals, as well as an increasing number of discouraged jobseekers.

Figure 3: Sectoral gross value-added and employment growth, 2001 to 2012



Source: Bhorat et al., 2014

Profile of the labour force

An engaged and productive society and economy is dependent on an educated citizenry and a skilled and capable workforce. The South African labour force has been, and continues to be, shaped by the aftermath of apartheid, leading to two major contemporary challenges: the challenge to grow the skills and

capability levels of the workforce which started from a very low base; and the challenge to reduce one of the highest unemployment rates in the world.

Overview of the South African labour force

The South African employed population in the labour force increased from 13.8 million in 2010 to 15.1 million in 2014; hence an additional 1.3 million jobs were created. In the same period, the official number of unemployed persons rose

Figure 4: Jobs deficit: Gap between working-age and employed population (million), 2010 to 2014



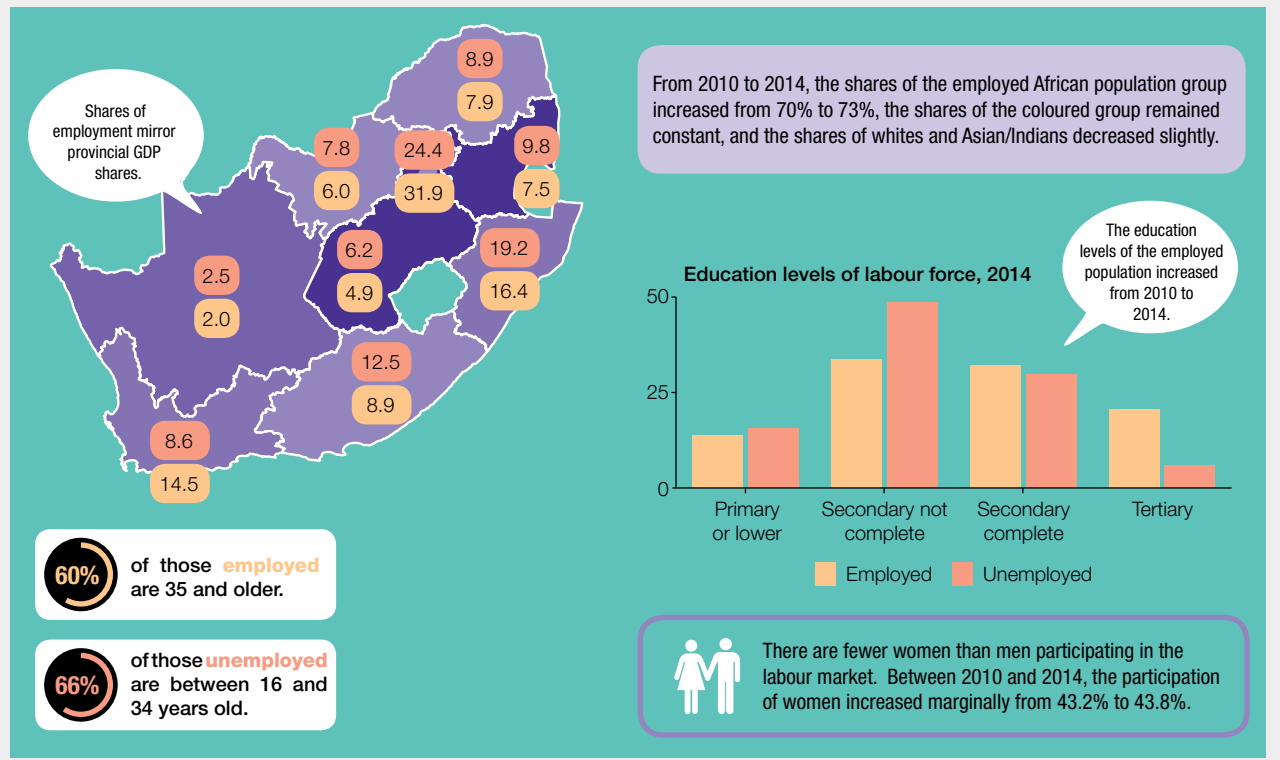
Source: Authors' calculations based on Labour Market Dynamics data, Stats SA(2014)

from 4.6 million to 5.1 million (Figure 4). Further, much of the working-age population has resigned itself to the state of unemployment (discouraged jobseekers) and is not looking for jobs – this group increased from 2 million to 2.4 million for the same period.

South Africa experiences high levels of unemployment and this is a major threat at the personal, social and economic level of the country. The official unemployment levels started increasing in 2010 at 24.9%, and reached a rate of 25.1% in 2014. Based

on the expanded unemployment definition, 35.4% and 35.3% of the economically active population was unemployed in 2010 and 2014, respectively. This high level of unemployment contributes to South Africa's continued status as one of the most unequal societies in the world.

Figure 5: Characteristics of the employed and unemployed, 2014



Who are the employed and the unemployed?

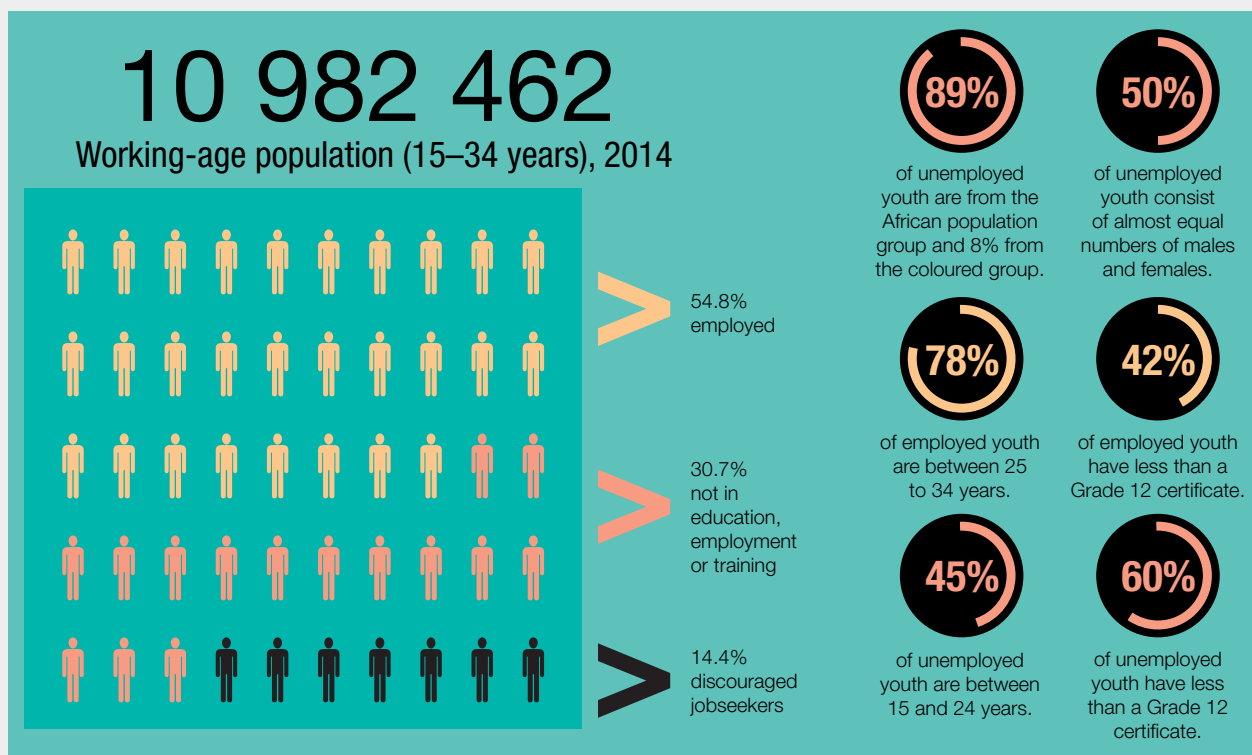
We provide an overview of the South African labour force (the employed and unemployed) for the 2010 to 2014 period through an analysis of demographic variables (spatial location,

gender, population group, age and education level), and examine the trend over this period. This will provide signals to both post-school education and training, and workplace training programmes, on how they organise the education and training programmes.

Who are the employed and unemployed youth?

The youth group (15–34 years) constitutes one-third of the population. Given the high levels of youth unemployment in the country, we have chosen to highlight the characteristics of the youth labour force, especially with regard to gender, population group and education levels.

Figure 6: Youth employment and unemployment



Skills demand: Changes in the structure of employment

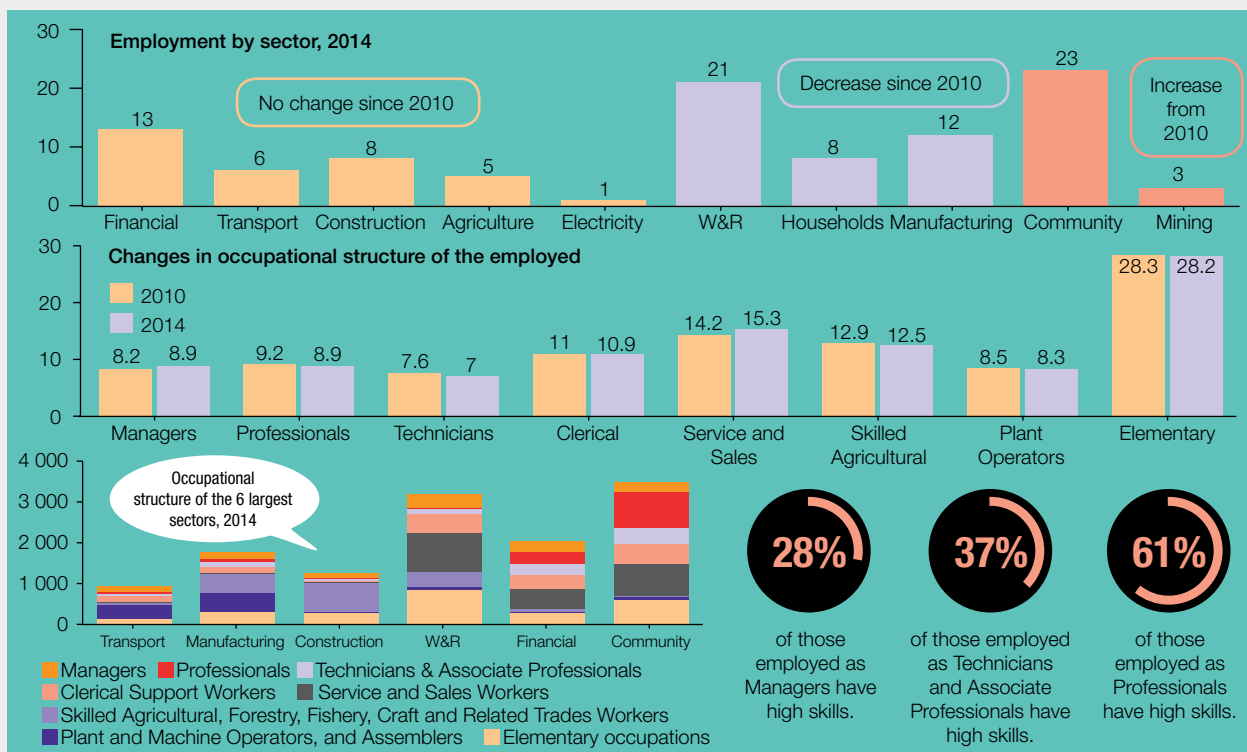
We analysed changes occurring in the structure of the economy in order to provide signals of skills demand. We report on (i) employment changes by sector and occupations; and (ii) skills required by government growth initiatives, employers' perception of skills needed in their firms, list of occupations in high demand, and shortages identified for implementing the

Strategic Integrated Projects. Together, this data helps us to build a picture of the demand for occupations and skills, and provides a signal to the education and training system on areas of supply to be prioritised.

Employment changes by sector and occupations

We examined the employment changes, between 2010 and 2014, occurring within the ten industrial sectors of the economy and the eight occupational categories. Sectorally, in this period, we observe an increase by 1 percentage point in the employment shares in the mining and quarrying sector and by 2 percentage

Figure 7: Structure of the economy



points in the community and social and personal services sector. The employment shares decreased in the manufacturing sector and the wholesale and retail trade sector by 1 percentage point each. Occupationally, in the same period, we observe that the employment shares increased by 1.1 percentage point for Service and Sales Workers and by

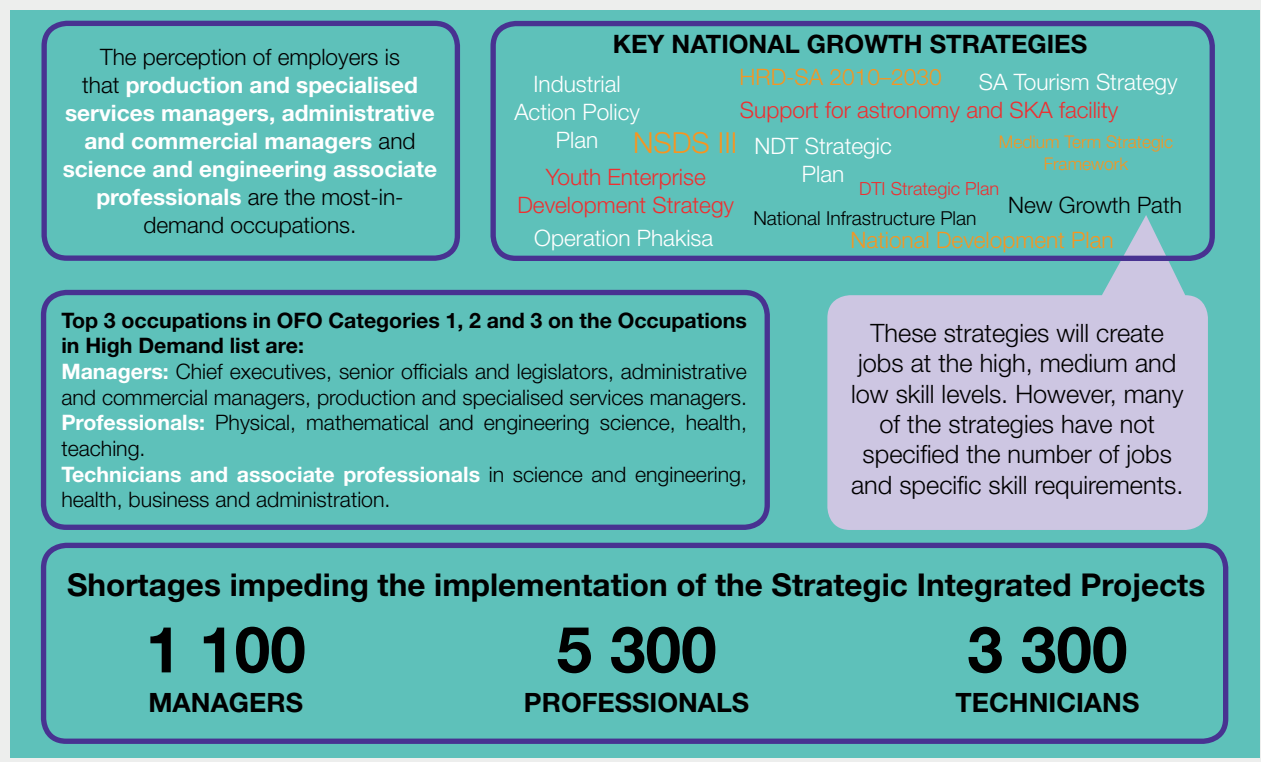
0.7 percentage points for Managers and Senior Officials. There was a decrease of employment shares, by 0.6 percentage points, for Technicians and Associate Professionals.

Skills for growth initiatives

We reviewed a number of government's economic development policies, including

the Strategic Integrated Projects, in order to generate a broad estimate of the skills needed to effectively implement these strategies. Additionally, we report on employers' perception of skills needs using the SETA Pivotal List and the analysis to determine the list of occupations in high demand. Taken together, this can provide one of the signals for skills demand.

Figure 8: Skills for growth



Skills supply

This section describes the supply and potential supply of skills from the formal schooling, TVET and university sectors. This provides the basis for identifying the types of skills that people acquire when they move through the education system and enter the labour market. The question that this report tackles is whether or not South Africa is producing the appropriate

skills and qualifications at each level, and the extent to which this facilitates inclusive employment.

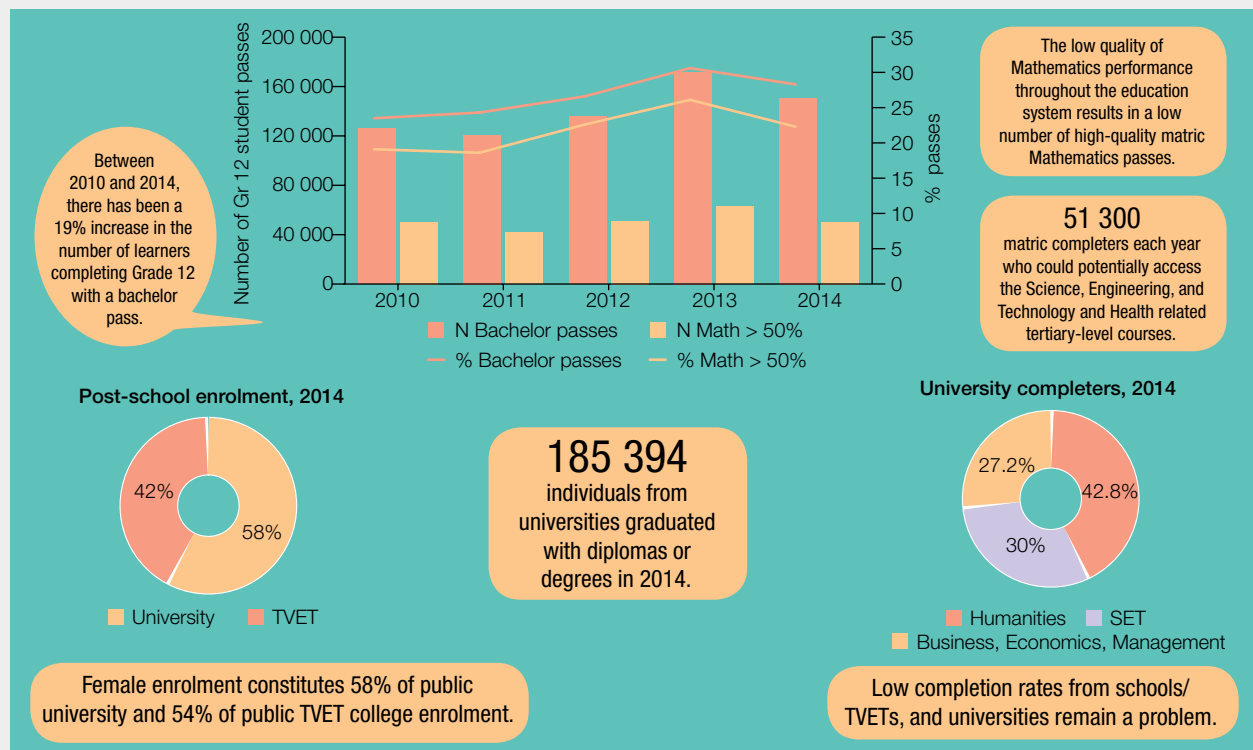
The schooling system

Education is a key priority, and the country has invested enormous resources to improve the schooling system. The state has improved

access to schooling, but positive outcomes, notably in Mathematics and Science subjects, remain elusive. This poor foundation impacts negatively on the types and quality of skills entering the labour market.

The quality of the matriculation (Grade 12) pass rates, and, in particular, the indicator of

Figure 9: Skills supply



the number of bachelor passes, provides an indication of the potential pool available to enter post-school education and training institutions, especially in technical areas (see Figure 9).

University and TVET enrolments

In 2013, the university sector comprised 23 public universities and 113 private universities, with 85% of all higher education students

enrolled in public universities (DHET, 2016). The TVET sector is comprised of 50 public and 296 private institutions, with 80% of all TVET students enrolled in public institutions. The size of university enrolments (public and private) rose from 983 703 in 2010 to 1 111 712 in 2014, an average expansion of 2.1% per annum. The size of TVET enrolments (public and private)

rose from 405 275 in 2010 to 781 378 in 2014, an average expansion of 23% per annum.

Skills for the economy from the university and TVET sectors

Many skills policy documents identified skills needs in the areas of Business Science, Science, Engineering, Initial Teacher Education and Computer and Information Sciences.

Figure 10: TVET NC(V) 4, TVET Nated 6, and university diploma and degree completers, 2014

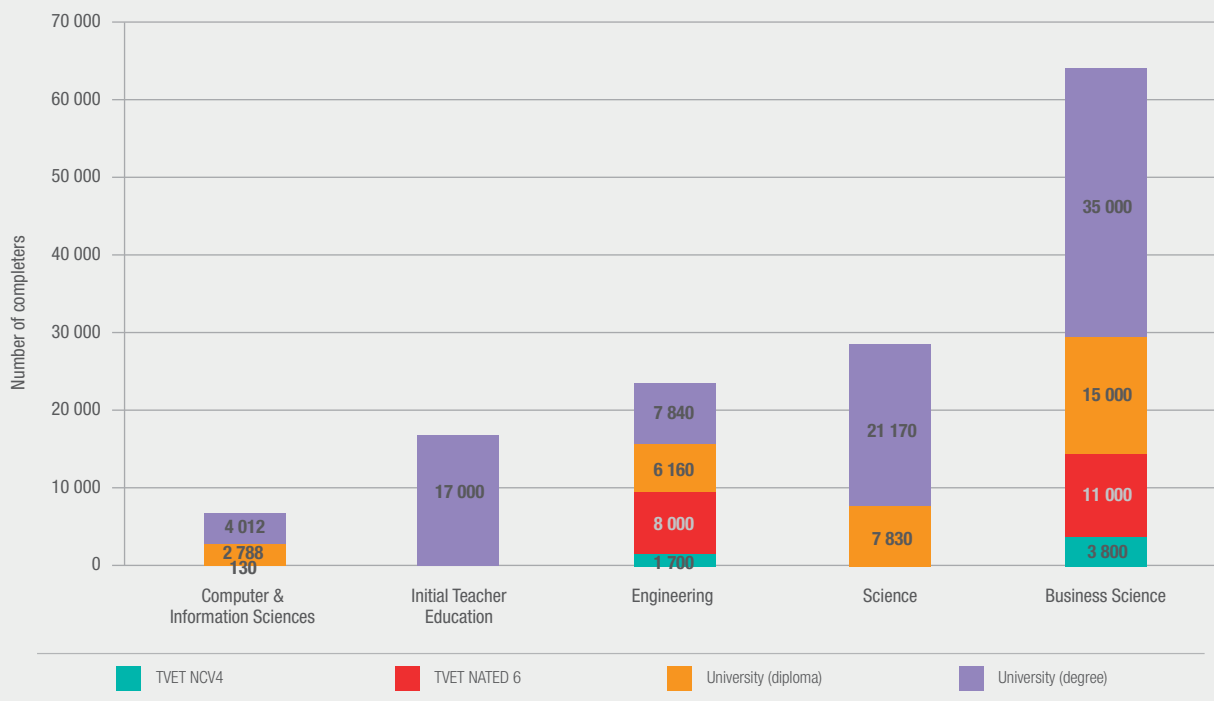
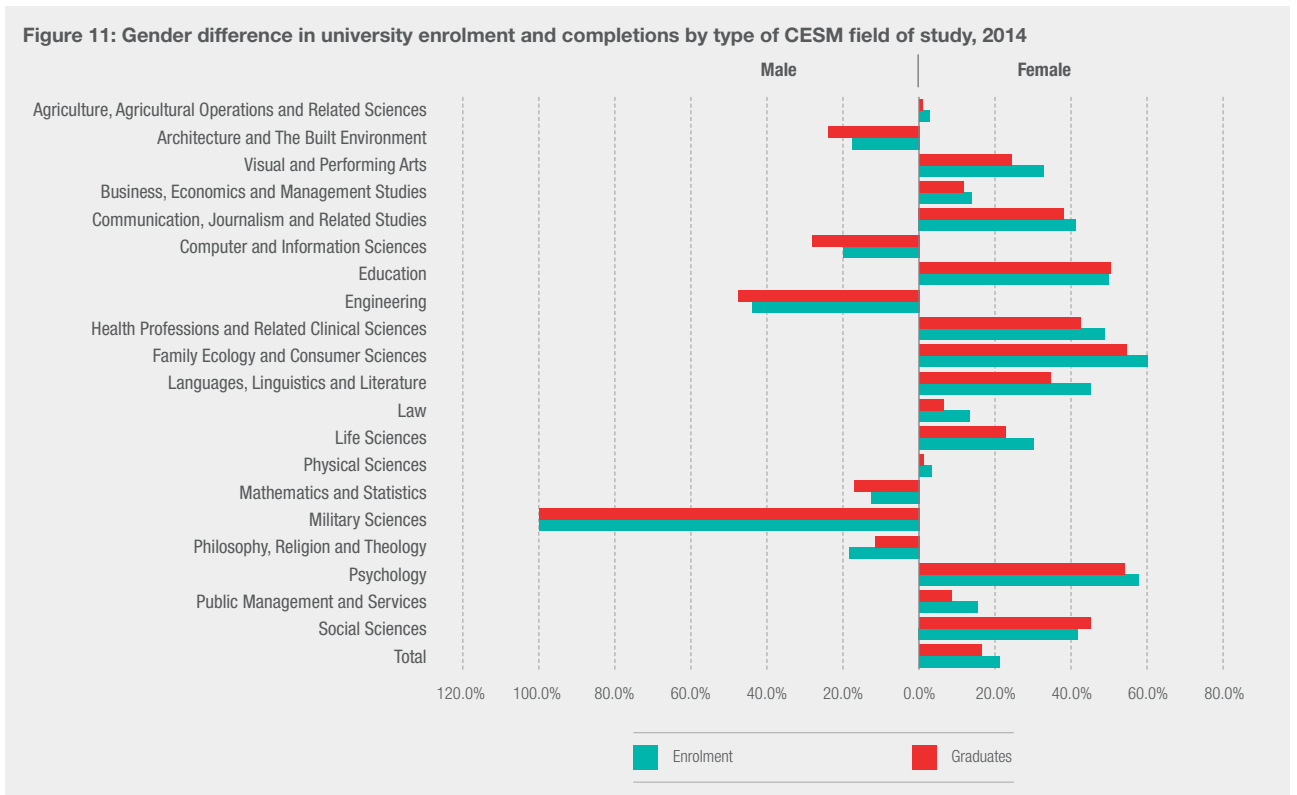


Figure 10 illustrates the number of completers from TVET NC(V) 4 and Nated 6, as well as university diploma and degree completers in the identified subject areas.

University completion by gender

In Figure 11, we examine the enrolment and completion rates by gender. One of the key findings from this part of the analysis is that qualification differences support gender stereotypes in the literature, in that males are likely to study for technical, science, technology

and engineering-based subjects, whereas females are focused on humanities subjects, such as health, education and the social sciences. Thus, a reformed skills policy must focus on re-ordering this gender bias in relation to particular higher education outcomes.



Understanding skills mismatches

A just and inclusive society requires that there are job opportunities for all, and that workers possess the requisite skills to do the job. Thus the labour market requires that the skills of the workforce match those required by employers, that the type of skills produced by the different levels of the education system respond to

market demand, and that the type of jobs created also respond to the skills set of the society.

Skills mismatch denotes the types of imbalances that occur between the types of skills developed and those needed in the

world of work. Analysis of imbalances and mismatches provides signals to inform a skills policy response. For the South African context, we can categorise mismatches into three main types: demand mismatch, educational supply mismatch and qualifications–job mismatch.

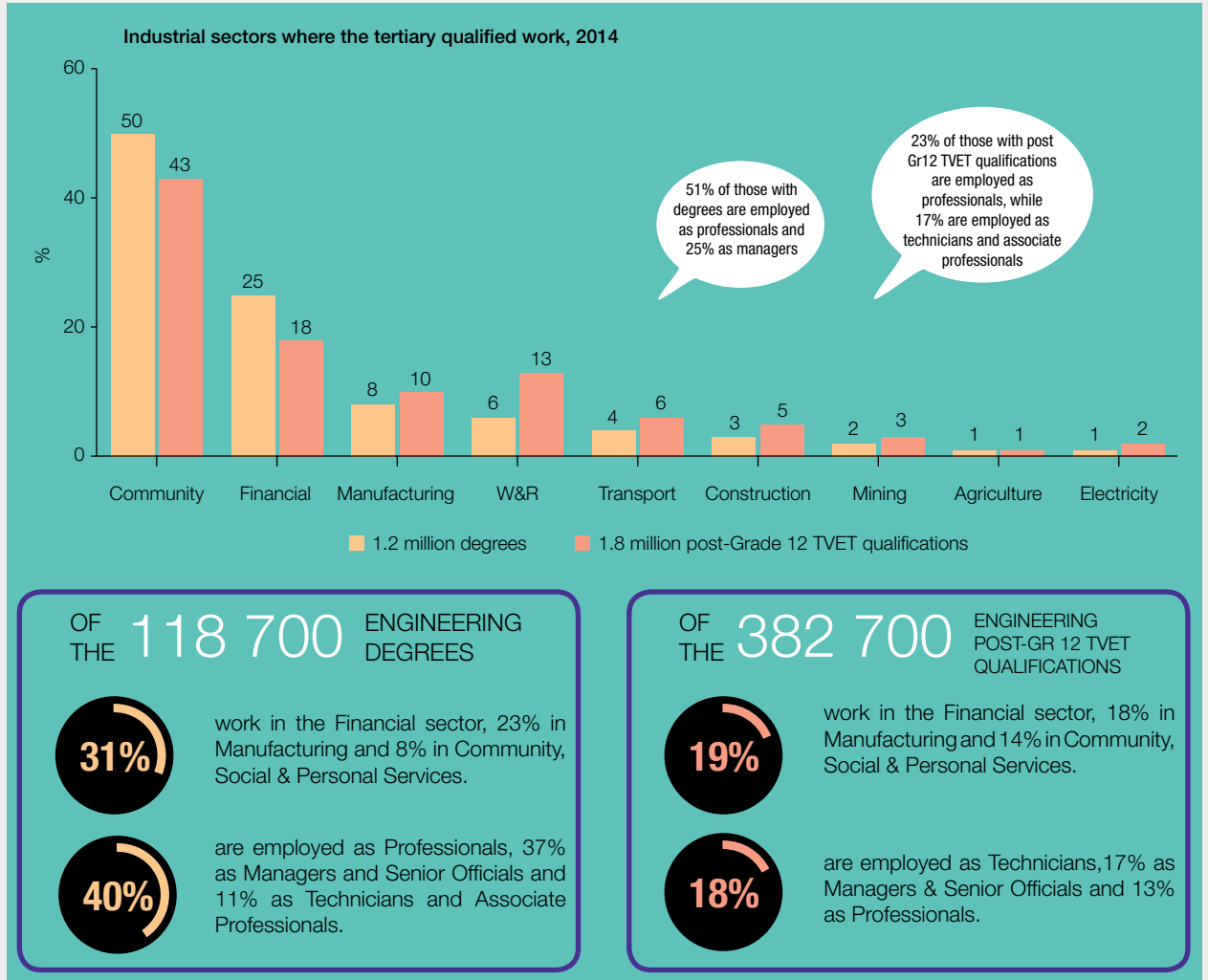
Table 2: Types of mismatches in South Africa

Mismatch category	Explanation of the mismatch
<i>Demand mismatch</i> examines the shape and trajectory being followed by the economy, the types of jobs being created, and the skills set and expectations of the working-age population.	The South African developmental challenge is to both grow the economy and to create jobs for the majority of the population. The South African development trajectory appears to have moved into a skills-biased employment trajectory which is dependent on the financial services sector for growth, and on the wholesale and retail trade and the public sector for jobs. This growth is not sufficient to absorb new entrants into the labour market. A structural mismatch between labour demand and supply is the most significant type of mismatch in South Africa, in that the economy and labour market show a demand for high-skilled workers, but there is a surplus of low-skilled workers.
<i>Educational supply mismatch</i> examines the type of skills produced by different levels of education and training systems, and the degree to which they respond to skills demand in specific fields or occupations.	The education supply mismatch currently experienced highlights the need to enrol and graduate higher numbers of STEM graduates from both universities and TVET colleges. Further, there is a need for higher enrolments and completion rates in the building and construction, metal machinery and related trades programmes (see Table 3).
<i>Qualification–job mismatch</i> is comprised of two dimensions: (i) the qualification gap which examines the match between the type of qualifications required by workers in medium- and higher-level occupations, and the actual type of qualifications held by those in such occupations. (ii) it traces the sectors and occupations that the educational qualifications are absorbed into.	(i) This analysis revealed that there is a qualification gap, in that less than half of Managers and Senior Officials, and Technicians and Associate Professionals had a tertiary-level qualification. (ii) The educational qualification–job mismatches showed that higher education graduates tended to be employed in high-skilled occupations as Managers, Professionals, and Technicians and Associate Professionals. In contrast, only a minority of those with TVET qualifications worked as Technicians and Associate Professionals. Significantly, the data also revealed that nearly half of the higher education graduates are employed in the Community, Social and Personal Services sector. Finally, a high proportion of the Science and Engineering graduates, from both higher and technical and vocational education sectors, prefer to work in the Financial services sector, as opposed to the Manufacturing sector (Figure 12).

Table 3: Occupations in demand and response of educational supply

DEMAND FOR QUALIFICATION				SUPPLY OF QUALIFICATIONS
Occupational area	Severe demand for the skill	Moderate demand	Less severe demand	Signals on current supply, 2014
SKILLED Managers	Production and service managers Administrative and commercial managers	Health managers Hospitality, retail and other service managers	Health and safety managers Legal and ICT managers	<ul style="list-style-type: none"> • 11 366 N6 TVET business-related qualifications • 50 380 business and management university graduates • 7 270 law university graduates
SKILLED Professionals	Teachers: Early childhood development and mathematics and science STE professionals Business and administrative professionals	Social-welfare professionals Health and social service professionals, especially medical doctors	Accounting and finance professionals Mining engineers Life scientists	<ul style="list-style-type: none"> • 17 000 new education university graduates • 14 077 graduate engineers • 6 800 ICT graduates • 12 500 health profession graduates • 7 270 law graduates • 29 000 science graduates
SKILLED Technicians and Associate Professionals	Business and administrative associate professionals; STEM and associate professionals Food and beverage technicians	Health associate professionals Mining and engineering technicians Mining technologists	Legal, social, cultural and related associates Information and communication technicians	<ul style="list-style-type: none"> • 3 824 NCV4 business and administrative completers • 1 648 engineering completers at NQF Level 4 • 130 ICT completers at NQF Level 4 • 8 000 NATED 6 engineering completers
SEMI-SKILLED Clerical Support workers and Service and Sales workers			Sales workers, Personal-care workers Personal-service workers	
SEMI-SKILLED Skilled Agricultural and trade workers	Building and trade-related workers; metal machinery and related trades workers; electrical and electronic trades workers	Food processing Woodworking	Garment, craft and related trade workers	<ul style="list-style-type: none"> • 329 civil, building and construction; 520 engineering-related design; and 595 electrical infrastructure construction engineers completed at NQF Level 4
SEMI-SKILLED Plant and Machine Operators and Assemblers		Drivers and plant operators	Assemblers	<ul style="list-style-type: none"> • 5 process plant operators completed courses at a TVET college

Figure 12: Skills mismatches



Key trends in skills supply and demand in South Africa

We documented the state of the economy, described the characteristics of the employed and unemployed who make up the labour force, and examined changes in the structure of the economy in order to provide signals on the nature and extent of skills in demand. This was followed by an analysis of the supply and potential supply of skills resulting from formal education, universities and the technical vocational education and training (TVET) college system. Thereafter, we examined the interaction between skills supply and demand in order to understand mismatches in the shape of the economy, in the educational skills produced, and about the labour market destinations of those with post-school qualifications. What have we learnt?

Since 1994, the South African economy has been characterised by low growth rates, persistent high unemployment rates and rising inequality.

A key constraint to sustainable job creation in South Africa is the structural mismatch between labour demand and supply. Under this mismatch, the economic growth has favoured high-skilled workers, despite the fact that the majority of the employed and the unemployed have low-level skills. This employment growth has not been sufficient to absorb the large numbers of youths coming into the labour market for the first time. The end result is an escalating unemployment rate.

The South African labour force is made up of 15 million employed and 7.5 million

unemployed people. Ninety percent of the unemployed are from the African population group. Unemployment is also particularly high amongst the youth, and this is increasing as more young people join the labour force. Sixty percent of the unemployed have less than a Grade 12 certificate, and 45% are between the ages of 15 and 34 years.

The level of education in South Africa is lower than in most economically productive countries.

Access to schools, universities and TVET colleges has improved. However, quality remains elusive, leading to low progression through programmes in all types of educational institutions, as well as low completion rates from schools, TVET colleges and universities. A critical constraint on the education and training system and the labour market is the inadequate quality of basic education. Success in the school subjects, Languages, Mathematics and Science, forms the basis for participation and success in technical subjects in post-school education and training institutions, and in the workplace. Presently, each year, around 140 000 Grade 12 learners complete the matriculation examination with a bachelor pass, and, of these, only around 50 000 pass Mathematics with a score higher than 50%. The pool of students who can potentially access university- and science-based TVET programmes is very small in comparison with the skills demands in the country.

The university and TVET college subsystems are the largest components of the post-school education and training system. In 2014, there were around 1.1 million students in the university sector and 0.8 million students in the TVET sector. Completion rates at both universities and TVET colleges are less than desirable, in that, in 2014, there were 185 000 completers from the university sector, and 21 000 NCV 4 and 57 000 NATED 6 programme completers from the TVET sector.

Of the labour force, close to half of the employed (7.25 million) and 60% of the unemployed (4.5 million) do not have a Grade 12 (matric) certificate. This means that 11.75 million of the labour force has less than a Grade 12 certificate. This represents a large portion of the population which could benefit from education and training programmes. In 2014, only 1.6% of the unemployed participated in SETA-supported learning programmes.

From our analysis, we identified three types of mismatches related to skills and the economy.

'Skills mismatch' refers to various types of imbalances between skills offered and skills needed in the world of work. We categorised mismatches into three types: demand mismatch, educational supply mismatch and qualifications-job mismatch.

Demand mismatch: A structural mismatch between labour demand and supply is the most significant type in the South African context, in that the economy and labour market show a

demand for high-skilled workers, but there is a surplus of low-skilled workers.

Our analysis of the *educational supply mismatch* currently experienced highlights the need to enrol and graduate higher numbers of STEM graduates from both universities and TVET colleges. Further, there is a need for higher enrolments and completion rates in the building and construction, metal machinery and related trades programmes.

Qualification–job mismatch analysis reveals, firstly, that there is a qualification gap, in that less than half of Managers, Senior Officials, Technicians and Associate Professionals had a tertiary-level qualification. Secondly, the evidence shows that higher education graduates tended to be employed in high-skilled occupations as Managers, Professionals, Technicians, and Associate Professionals.

In contrast, only a minority of those with TVET qualifications worked as Technicians and Associate Professionals. Significantly, the data also revealed that nearly half of the higher education graduates are employed in the Community, Social and Personal Services sector. Finally, a high proportion of the Science and Engineering graduates, from both higher and technical and vocational education sectors, prefer to work in the Financial services sector, as opposed to the Manufacturing sector.

Progress concerning race and gender transformation.

The shares of African and female workers in the workforce have been increasing, but African females are still the most disadvantaged group. With the present data, we cannot with confidence comment about shifts in

participation by race and gender at the occupational level.

The levels of education of the workforce, especially in respect of the African population, have been increasing. Enrolment and graduations, by population group, at both universities and TVET colleges have been increasing and are closer to South Africa's demographic profile.

While the shares of female students in both the university and TVET sectors have increased, an analysis of university completers shows that qualification differences support gender stereotypes in the literature, in that males are likely to study for the so-called masculine science, technology and engineering-based subjects, whereas females are focused on so-called feminine subjects, such as health, education and the social sciences.

Key recommendations for skills supply and demand

Our recommendations are based on an approach to skills planning that takes into account the challenges of economic growth and inclusive development in South Africa. The skills planning focus is not only on a small number of skilled people in the workplace, but also on the unemployed, the youth, low-skilled people, the marginalised, and those in vulnerable forms of employment, including the self-employed. The dilemma facing policymakers is how to respond to these diverse sets of development and occupational pathways, and then decide how resources should be targeted for inclusive skills development. These imperatives may seem paradoxical, but all are essential to achieve a more inclusive growth and development trajectory.

We make five key recommendations:

1. Challenges for economic growth and development

Recognising that the South African jobs and skills history profile is different from the East Asian or European contexts, the economy must respond to the twin challenge of participating in a globally competitive environment which requires a high skills base, and a local context that creates low-wage jobs (with supported training) so as to absorb the large numbers who are unemployed or in vulnerable jobs. The economy should start moving towards more labour-intensive forms of growth in order to absorb the growing levels of people, particularly young people, as first-time labour market entrants. This will require significant changes

to both industrial policy and the development pathways being pursued by the country.

2. Stronger coordination between growth and industrial policies and skills policies

More government coordination is needed, including stronger integration of government departments' growth strategies and strategies targeting skills development and education. Currently, there are many national- and provincial-level strategies that aim to promote local economic development and deal with unemployment. These growth plans must take into account skills requirements, or they will likely experience difficulties in implementation. Therefore, government departments must realistically estimate the skills needed for the implementation of the strategy and plan their human resource strategy in advance.

3. Improved levels of education and skills

The education and training sector has a fourfold responsibility: to improve the levels of education of the population, to improve the skills sets of the youth, to increase supply in areas identified as in demand for the present and future economy, and to support inclusive growth. We recommend the following regarding education and skills:

⇒ Improve the quality of basic education. The key constraint to higher levels of education is the quality of basic education, especially in the Numeracy/Mathematics and Literacy/Languages areas. The Department of Basic

Education must improve the quality of educational experiences leading to improved educational outcomes.

- ⇒ At the professional level, there is a demand for STEM graduates. STEM graduates are needed for management occupations, engineering professions, medical professions, as well as for teaching professions. It is clear that STEM graduates have a set of versatile skills and therefore they can, and do, work in different sectors. The implication for education and training is that there is a need to enrol and graduate higher numbers of STEM graduates than is required by current levels of STEM occupations. We must increase the number of teachers, particularly in the area of secondary-school Mathematics and Science teachers as well as ECD professionals.
- ⇒ For managers, there is a need to increase the supply of graduates in certain technical subjects. These graduates should then be supported by improved professional workplace experience and mentorships in order to gain management skills.
- ⇒ At the technician level, there is an undersupply of Engineering Technicians and Associate Professionals, as well as Building and Construction, Metal Machinery, Electronic and Electrical and Related Trades workers.
- ⇒ With high levels of youth unemployment, the majority having either incomplete or completed secondary education, there is a strong argument to prioritise appropriate skills training for this group. The SETAs are

mandated to play a key role in this process, especially for those who have minimal skills and face difficulties gaining employment.

- ➔ The National Plan for Higher Education targets and funding should be reviewed so as to increase the shares of SET enrolments in university courses from the present 30% to 35%, especially in the areas of the Engineering and Health Professions.
- ➔ The TVET sector must develop enrolment targets in line with skills needed for the labour market, and we recommend a target of 45% for NC(V)4 and NATED 6 (N6) Engineering courses.

4. Improved match between field of study and labour market destination

Workplaces must review their recruitment strategies and remuneration packages for

graduates. Over half of the country's graduates enter the Community and Social Services sector, which is dominated by the Public sector. These positions offer graduates a relatively good salary, job security and other social benefits, such as health care and pensions. Unfortunately, this is distorting the labour market and is not attracting graduates to the private-sector labour market. Globally, the private sector is a key generator of jobs and growth, and the South African private sector must review its human resource strategies in order to attract more graduates to the sector.

5. Improved evidence base for future reports

The Department of Higher Education and Training must work closely with Statistics South Africa and the other relevant government

departments to collect data for skills planning using their administrative data sets. This can be accomplished by participating and engaging in the National Statistics System (NSS) of South Africa. Going forward, data on vacancies, immigration and emigration (including data about educational levels, employment sectors and occupations) must be included. A credible enterprise survey could have provided richer information about employees and the types of workplace training that occur. Other key labour market data that is essential for skills planning is student tracking and destination studies, and skills requirements for both private-sector expansion and government growth plans. Future reports must furthermore include skills forecasting models based on contextually appropriate methodologies.

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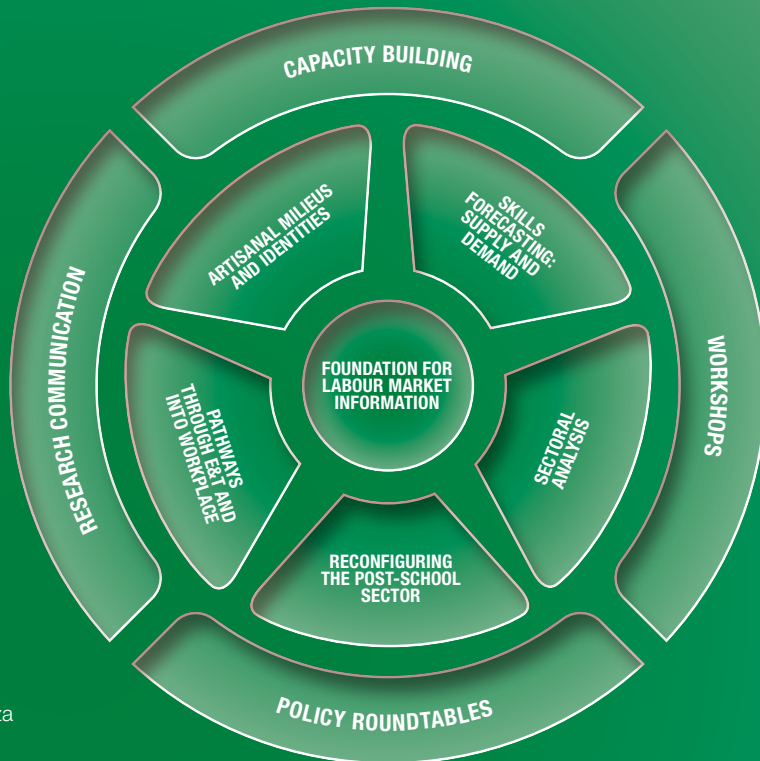
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