

**SKILLS STRATEGY: SUPPORT FOR THE SOUTH AFRICAN ECONOMIC RECOVERY AND  
RECONSTRUCTION PLAN**

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*Skills development is critical not only in driving South Africa's economic recovery and reconstruction, but also in sustaining it (Economic Recovery and Reconstruction Plan, 2020)*

## Foreword by the Minister of Higher Education, Science and Innovation

The Economic Reconstruction and Recovery Skills Strategy (ERRP SS) aims to support the Economic Reconstruction and Recovery Plan (ERRP) to ensure that it is not compromised by skills shortages. It is borne out of the urgency for a well-coordinated strategy of skills development to support both the management of Covid-19 as well as economic and social recovery. President Ramaphosa captures our determination to reset the South African economy when he said:

*We are determined not merely to return our economy to where it was before the coronavirus, but to forge a new economy in a new global reality.*

As stated in the ERRP, South Africa is now on the threshold of an important opportunity to imaginatively, and with a unity of purpose, reshape its economic landscape. Skills development is one of the identified enablers to ensure the successful implementation of the plan. The focus on skills is wide-ranging and entails optimising the regulatory environment, structural reforms to boost education and skills development and a concerted effort to build the skills base required by our changing economy ahead of global technology advances.

The ERRP SS is located within the broader skills planning arsenal of the Post-School Education and Training System, which promotes the use of labour market intelligence (including future work scenarios) to inform PSET provisioning. The DHET has identified skills needs in the form of the *List of Occupations in High Demand*, the *Priority Skills List* and the *Critical Skills List* (which it prepared on behalf of the Department of Home Affairs).

This strategy assigns specific roles to role-players such as Sector Education and Training Authorities (SETAs), the National Skills Fund (NSF) and the Quality Councils for ensuring that qualifications are developed in response to demand. Though the strategy places emphasis on the role of the post-school education and training (PSET) system in ensuring the provisioning of skills needs, it also seeks to rally the support of government departments such as Trade, Industry and Competition, Employment and Labour, Public Works and Infrastructure, Agriculture and Rural Development, Small Business Development, Telecommunications and the private sector to respond to, support and ensure that there are no skills constraints in the implementation of the ERRP.

The strategy is aimed at expanding the participation of young people in skills development programmes as well as workplace based learning opportunities. The ERRP commits to ensuring that learners access workplace-based learning opportunities and places the responsibility to all infrastructure projects to contribute towards the creation of new skilled artisans.

While equipping more young people to enable them to be absorbed into high-potential growth sectors, the re-training of workers to prevent further job losses is another priority of the strategy. This strategy thus seeks to prioritise steps that will build the PSET system's capacity to be responsive to the needs of the economy in the longer term, whilst putting in place interventions that can more immediately meet the imperatives emerging from the ERRP.

Minister of Higher Education, Science and Innovation

Dr BE Nzimande, MP

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## LIST OF ACRONYMS

|          |                                                                           |
|----------|---------------------------------------------------------------------------|
| BBBEE    | Broad Based Black Economic Empowerment                                    |
| BPO      | Business Process Outsourcing                                              |
| CATHSETA | Culture, Arts, Tourism and Sports Sector Education and Training Authority |
| CET      | Community Education and Training                                          |
| CHE      | Council for Higher Education and Training                                 |
| CSIR     | Council for Scientific and Industrial Research                            |
| CSL      | Critical Skills List                                                      |
| CoS      | Centre of Specialisation                                                  |
| CTFL     | Clothing, textile, footwear and leather                                   |
| DALRRD   | Department of Agriculture, Land Reform and Rural Development              |
| DBE      | Department of Basic Education                                             |
| DBSA     | Development Bank of Southern Africa                                       |
| DCDT     | Department of Communications and Digital Technologies                     |
| DEL      | Department of Employment and Labour                                       |
| DFFE     | Department of Forestry, Fisheries and the Environment                     |
| DHA      | Department of Home Affairs                                                |
| DHET     | Department of Higher Education and Training                               |
| DMRE     | Department of Mineral Resources and Energy                                |
| DPWI     | Department of Public Works and Infrastructure                             |
| DSAC     | Department of Sports, Arts and Culture                                    |
| DSBD     | Department of Small Business Development                                  |
| DSI      | Department of Science and Innovation                                      |
| DTIC     | Department of Trade, Industry and Competition                             |
| ECD      | Early Childhood Development                                               |
| EOC      | Executive Oversight Committee                                             |

|           |                                                                                       |
|-----------|---------------------------------------------------------------------------------------|
| ERRP      | Economic Reconstruction and Recovery Plan                                             |
| ESSA      | Employment Services of South Africa                                                   |
| ETDP SETA | Education, Training and Development Practices Sector Education and Training Authority |
| GETC      | General Education and Training Certificate                                            |
| GIZ       | German Agency for International Cooperation                                           |
| HE        | Higher Education                                                                      |
| ICT       | Information and Communication Technology                                              |
| IDC       | Industrial Development Corporation                                                    |
| IOS       | Index of Occupational Shortages                                                       |
| IOPSA     | Institute of Plumbing South Africa                                                    |
| IPAP      | Industrial Policy Action Plan                                                         |
| IPP       | Independent Power Producer                                                            |
| IRM       | Installation, repair and maintenance                                                  |
| IYF       | International Youth Foundation                                                        |
| LAP       | Labour Activation Programme                                                           |
| LPO       | List of Priority Occupations                                                          |
| MLAB      | Mobile Applications Laboratory NPC                                                    |
| MOOC      | Massive open online course                                                            |
| MSDF      | Michael and Susan Dell Foundation                                                     |
| MTSF      | Medium-Term Strategic Framework                                                       |
| NACAAM    | National Association of Automotive Component and Allied Manufacturers                 |
| NATED     | National Accredited Technical Education Diploma                                       |
| NBI       | National Business Initiative                                                          |
| NCV       | National Certificate Vocational                                                       |
| NDP       | National Development Plan                                                             |
| NEET      | Not in Education, Employment or Training                                              |
| NLRD      | National Learner Record Database                                                      |

|        |                                                        |
|--------|--------------------------------------------------------|
| NPPSET | National Plan for Post-School Education and Training   |
| NQF    | National Qualifications Framework                      |
| NSA    | National Skills Authority                              |
| NSDS   | National Skills Development Strategy                   |
| NSF    | National Skills Fund                                   |
| NSFAS  | National Student Financial Aid Scheme                  |
| NYDA   | National Youth Development Agency                      |
| OECD   | Organisation for Economic Co-Operation and Development |
| OFO    | Organising Framework for Occupations                   |
| OQSF   | Occupational Qualifications Sub-Framework              |
| PES    | Public Employment Service                              |
| PMN    | Pathway Management Network                             |
| PMO    | Project Management Office                              |
| PSET   | Post-School Education and Training                     |
| PSP    | Priority Skills Plan                                   |
| PQM    | Program and Qualification Mix                          |
| PYEI   | Presidential Youth Employment Initiative               |
| QC     | Quality Council                                        |
| QCTO   | Quality Council for Trades and Occupations             |
| R & D  | Research and development                               |
| RDI    | Research, development and innovation                   |
| SALDRU | Southern Africa Labour and Development Research Unit   |
| SAQA   | South African Qualifications Authority                 |
| SETA   | Sector Education and Training Authority                |
| SHEQ   | Safety, health, environment and quality                |
| SHIP   | Student Housing Infrastructure Programme               |
| SIP    | Strategic Infrastructure Program                       |
| SLA    | Service Level Agreement                                |

|       |                                                    |
|-------|----------------------------------------------------|
| SMME  | Small, medium and micro enterprises                |
| SONA  | State of the Nation Address                        |
| STI   | Science, technology and innovation                 |
| TERS  | Temporary Employee Relief Scheme                   |
| TIA   | Technology Innovation Agency                       |
| TUT   | Tshwane University of Technology                   |
| TVET  | Technical and Vocational Education and Training    |
| UIF   | Unemployment Insurance Fund                        |
| UJ    | University of Johannesburg                         |
| UKPF  | UK Prosperity Fund                                 |
| USAID | United States Agency for International Development |
| UoT   | University of technology                           |
| WBL   | Work-based learning                                |
| WIL   | Work integrated learning                           |
| YES   | Youth Employment Service                           |

## GLOSSARY OF TERMS

| No  | Term                           | Definition                                                                                                                                                                                                                                                                                                                          |
|-----|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Apprenticeship                 | means a period of workplace based learning culminating in a listed trade.                                                                                                                                                                                                                                                           |
| 2.  | Candidacy                      | means a period of workplace based learning undertaken by a graduate as part of professional designation as stipulated by a professional body.                                                                                                                                                                                       |
| 3.  | Graduate Internship            | means a period of workplace based learning for the purposes allowing a person who has completed a post -school qualification gain workplace experience or exposure to enhance competence and/employability.                                                                                                                         |
| 4.  | Internship for the "N" Diploma | means a period of workplace based learning undertaken for the "N" Diploma.                                                                                                                                                                                                                                                          |
| 5.  | Learnership                    | means a period of workplace based learning culminating in an occupational qualification or part qualification                                                                                                                                                                                                                       |
| 6.  | Occupational shortage          | refers to a case where an insufficient number of individuals are available to perform the set of jobs required for a particular occupation in demand by employers. This is a case where the economy's demand for a particular occupation exceeds the PSET sector's supply.                                                          |
| 7.  | Reskilling                     | the process of teaching individuals new skills so that the individual is able to perform a different role or, in some cases, enter into a new job or new industry altogether <sup>1</sup> .                                                                                                                                         |
| 8.  | Skills gap                     | is defined as a mismatch between the <b>tasks</b> employers expect their employees to do and those they are capable of doing <sup>2</sup> .                                                                                                                                                                                         |
| 9.  | Soft skills                    | refer to competencies that are not job-specific, but instead assist in completing tasks across a wide variety of occupations. <sup>3</sup> .                                                                                                                                                                                        |
| 10. | Student internship             | means a period of workplace based learning for a person who is enrolled at an education and training institution for a qualification registered on the NQF, and may include vacation work.                                                                                                                                          |
| 11. | Student internship: Category A | means a period of workplace based learning undertaken as part of the requirement for the Diploma, National Diploma, Higher Certificate or Advanced Certificate vocational qualifications as stipulated in the Higher Sub - Framework (HEQSF).                                                                                       |
| 12. | Student internship: Category B | means a period of workplace based learning undertaken as a requirement for a professional qualification.                                                                                                                                                                                                                            |
| 13. | Student internship: Category C | means a period of workplace based learning undertaken as part of requirement for the Occupational Qualifications of the Quality Council for Trades and Occupations ( QCTO).                                                                                                                                                         |
| 14. | Technical skills               | are dependent on the industry within which an occupation falls and often on the occupation itself. Therefore, a technical skill relies on an individual's competency to use particular tools or materials that are occupation or industry-specific. Resultantly, these might not translate across occupations easily <sup>4</sup> . |

<sup>1</sup> Talentguard (2019). Reskilling and Upskilling: A Strategic Response to Changing Skills Demands. [Online] Available at: <https://www.talentguard.com/reskilling-upskilling-strategic-response-changing-skill-demands/>

<sup>2</sup> Levesque (2019). Understanding the skills gap- and what employers can do about it. [Online] Available at: <https://www.brookings.edu/research/understanding-the-skills-gap-and-what-employers-can-do-about-it/>

<sup>3</sup> Doyle (2020). What are soft skills?. [Online] Available at: <https://www.thebalancecareers.com/what-are-soft-skills-2060852>

<sup>4</sup> Doyle (2020). Hard skills vs soft skills: what's the difference?. [Online] Available at: <https://www.thebalancecareers.com/hard-skills-vs-soft-skills-2063780> and Department of Public Service and Administration (2021). The Public Service Occupational Dictionary (Draft for Consultation), Tshwane: Department of Public Service and Administration.

| No  | Term       | Definition                                                                                                                               |
|-----|------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 15. | Upskilling | the process of teaching individuals new skills to ensure that an individual can complete their current job more efficiently <sup>5</sup> |

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<sup>5</sup> Talentguard (2019). Reskilling and Upskilling: A Strategic Response to Changing Skills Demands. [Online]  
Available at: <https://www.talentguard.com/reskilling-upskilling-strategic-response-changing-skill-demands/>

## EXECUTIVE SUMMARY

The skills strategy sets out key interventions to ensure the effective implementation of the Economic Recovery and Reconstruction Plan (ERRP). It is intended to ensure that skills are not a constraint to economic development and therefore proposes interventions and actions that address occupational shortages and skills gaps in the labour market. More importantly, the strategy supports the implementation of ERRP in ways that both maximise opportunities for new entrants to the labour market, as well as support the preservation of existing jobs and the creation of new jobs.

The strategy envisages that both public and private sectors will play a central role in its implementation. It represents a call for collective action, mobilising public and private education and training providers, Sector Education and Training Authorities (SETAs), business, government departments, state entities and other social partners to commit to working together to promote skills development.

The strategy identifies the skills implications of the ERRP and outlines ways in which the PSET system, together with other key role-players, will ensure that skills required to implement the ERRP are available. This strategy will therefore evolve as the ERRP itself evolves. The Department of Higher Education and Training (DHET) will serve as the lead department for the development and coordinated implementation of the strategy.

Skills are crucial for sustainable growth, productivity and innovation and are therefore key to the competitiveness of businesses. Human capital theorists advocate that providing people with the right skills improve their work effectiveness, better optimise the use of advanced technologies, reduces investments risks, minimises labour market mismatches and lays the ground for research and development (R&D) and firm-based innovation.

The skills strategy focuses on those interventions that facilitate access to skills development, and workplace-based learning (WBL) programmes, by large numbers of young people in order to boost job creation and improve employability. Given the unacceptably high numbers of young South Africans who are not in employment, education and training (NEET), it is imperative to expand access to WBL programmes (eg internships) and to improve employability through the provision of work readiness and other kinds of skills development programmes.

It is also imperative to support and incentivise self-employment through entrepreneurship development programmes, which have been recommended in many national plans and strategies, including the National Skills Development Plan (NSDP) and the National Development Plan (NDP). Since entrepreneurship contributes to economic growth and employment, more youth need to be encouraged and trained to become entrepreneurs. Entrepreneurship is generally considered a positive opportunity for youth, not only as a means of escaping unemployment, but also to help alleviate socio-economic challenges and help youth build interpersonal and behavioral skills such as perseverance and resilience.<sup>6</sup>

There is a similar urgency to undertake interventions that support the re-training of workers so as to prevent further job losses. Access to up- and reskilling opportunities is vital for the millions

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<sup>6</sup> DHET (2020). National University Entrepreneurship Ecosystem: Baseline Report. DHET. Pretoria

of workers who have been propelled into short-time work or unemployment, no matter their current level of skills or area of qualifications. Having the right skills means being able to be more employable or to stay employed more easily and to manage job transitions better. This requires an expansion of up-skilling and re-skilling opportunities for all people, irrespective of their qualification or skills level.

The strategy examines funding modalities for the various interventions that have been proposed to ensure a comprehensive and holistic approach to skills development.

The strategy comprises the following two dimensions each of which outline interventions and actions that support the implementation of the ERRP:

**Dimension 1: Interventions focused on the provision of targeted education and training programmes:**

1. **Expand** the provisioning of **short skills programmes** (both accredited and non-accredited) to respond to skills gaps identified in this strategy.
2. **Enable** the provisioning of **short skills programmes** (both accredited and non-accredited) that respond to skills gaps identified in this strategy.
3. Expand the provisioning of **workplace-based learning** (WBL) opportunities to respond to occupational shortages and skills gaps identified in this strategy.
4. Increase **enrolments** in **qualification-based programmes** that respond to occupational shortages identified in this strategy.
5. Review and revise education and training **qualifications, programmes and curricula** to respond to occupational shortages and skills gaps identified in this strategy.
6. Update the draft **Critical Skills List** and associated regulatory mechanisms

**Dimension 2: Interventions focused on enabling and supporting Education to Work Transitions:**

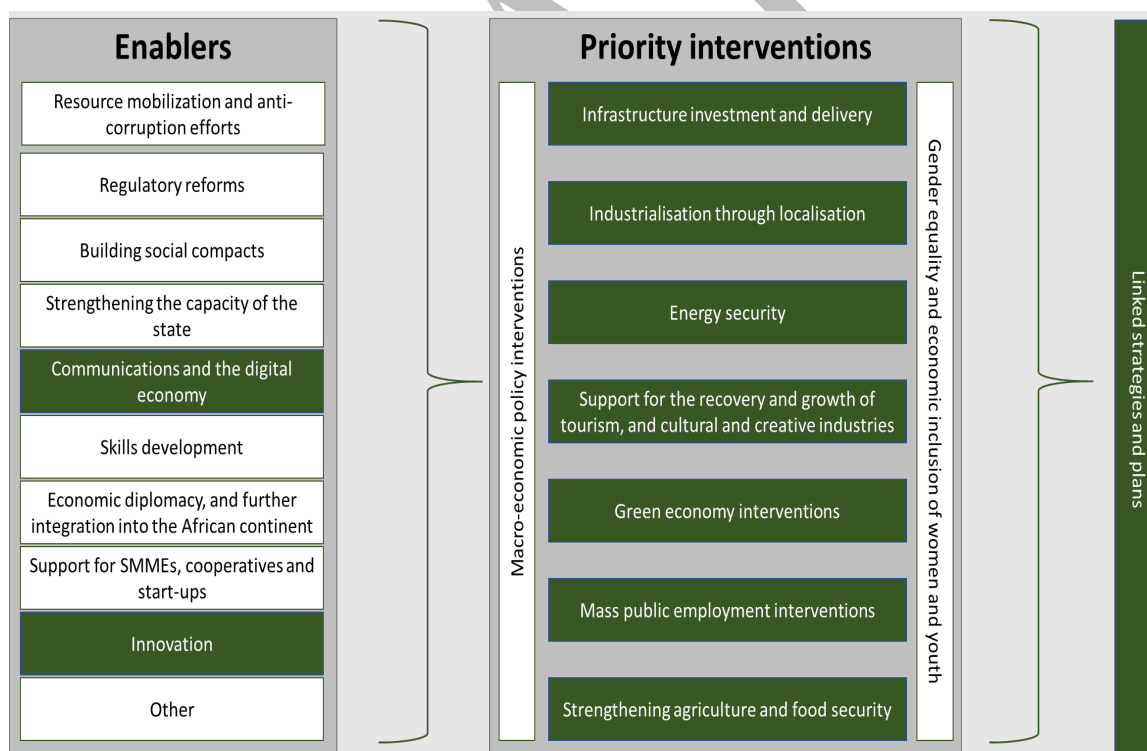
7. Strengthen **entrepreneurship development** programmes
8. Embed **skills planning** into economic planning processes and vice versa
9. Facilitate the use of the **National Pathway Management Network** (PMN) in the PSET system
10. Strengthen the **PSET** system

## 1. INTRODUCTION

The government has developed an economic plan as part of its package of responses to the devastating impact of COVID-19 pandemic on the economy and its effects on deepening current levels of unemployment, poverty and inequality. The plan, the "South African Economic Recovery and Reconstruction Plan" (ERRP) <sup>7</sup> aims to catalyse structural economic change needed for a post-COVID economic recovery while also addressing structural issues facing the economy. The plan recognises the extent of the crisis caused by the pandemic. Moreover, it takes into account that the impact of this global pandemic is exacerbated by the context of a decade of a stagnant economy and low levels of investment and growth in South Africa. COVID-19 has put a significant strain on collective efforts that are being made to tackle historical structural inequalities, as well as unemployment and poverty. The extent of these challenges has been recognised by all social partners, resulting in a strong commitment to 'mobilise all our resources and efforts in economic activities that will put the economy in a sustainable recovery trajectory'.

The ERRP identifies seven priority interventions and over ten enabling focus areas to grow the economy and create jobs. These are underpinned by macro-policy interventions and are expected to find expression in public and private sector strategies and plans. Figure 1 below provides a summary of these priority interventions and enablers.

**Figure 1: Priority interventions and enablers:**



<sup>7</sup> President Cyril Ramaphosa launched the Economic Reconstruction and Recovery Plan on the 15<sup>th</sup> October 2020

More specifically, the ERRP speaks to the above interventions as follows:

**Infrastructure:** Galvanise aggressive infrastructure investment that will unlock more than R1 trillion in infrastructure investment over the next 4 years;

**Industrialisation through localisation:** Promote employment-orientated strategic localization, reindustrialization and export promotion to reverse the decline of the local manufacturing sector through deeper levels of localisation and export ;

**Energy security:** Achieve reliable energy supply within two years;

**Tourism and Cultural and Creative Industries:** Support recovery and growth;

**Green economy:** Implement applicable government policies and plans;

**Mass public employment interventions:** Create thousand of jobs through a range of mass employment schemes across multiple economic sectors;

**Strengthen agriculture and food security:** Strengthen implementation

In all of these priority interventions there is a strong focus on ensuring gender equality and supporting the economic inclusion of women and youth, including through the implementation of the Presidential Youth Employment Interventions.

As indicated in Figure 1 above, the ERRP identifies a wide range of “enablers” that are expected to aid the growth of priority economic sectors. These range from **skills development**, resource mobilisation, anti-corruption measures, digitisation, building state capacity etc.

The importance of skills development to economic recovery is given expression in the ERRP, which states that, ‘Skills development is critical not only in driving South Africa’s economic reconstruction and recovery, but also in sustaining it’. The ERRP also highlights the need to contribute to the prevention of job losses through the expansion of reskilling and retraining of workers.

## 2. PURPOSE

This strategy has been designed to ensure that skills are available to support the implementation of the ERRP. It recognises that the priority interventions set out in the ERRP require skills and that if these skills are not available, then these interventions will fail. This is why a skills strategy aligned to the ERRP is so vital. In developing this strategy, we have recognised the complexity of responses required to address the skills needs associated with each of the ERRP interventions, as well as those that cut across economic sectors.

The strategy identifies the skills implications of the ERRP and outlines ways in which the post-school education and training (PSET) system, together with other key role-players, will ensure that skills required to implement this plan are available. It aims to ensure that the PSET system, in conjunction with key government departments and other stakeholders, will respond to the new demands which are being created in the economy. It is intended to support the implementation of ERRP in ways that both maximise opportunities for new entrants to the labour market, as well as support the preservation of existing jobs and the creation of new jobs. The strategy highlights the role of the Department of Higher Education and Training (DHET) as a coordinating department for the PSET system, and itemizes the initiatives it will support, working with other government

departments, Business, Labour and all other social partners. This is with a view to ensuring that public, private, and workplace education and training providers can support the imperatives of this strategy in the short term while strengthening the landscape and regulatory frameworks of the PSET system to meet demand in the medium and long term.

### 3. MANDATE FOR THE SKILLS STRATEGY

The mandate of the Skills Strategy is located within the context of the wider PSET system as given expression in the National Development Plan (NDP). The NDP highlights the importance of the PSET system in ensuring the provision of an appropriately skilled workforce. It states that one of the roles of the PSET system is to 'respond to the skills needs of all sectors of society, including business, industry, and the government.' In addition, The White Paper for Post-School Education and Training asserts that the education and training system should not only provide knowledge and skills required by the economy, but should also contribute to developing thinking citizens, who can function effectively, creatively and ethically as part of a democratic society. As per the White Paper, the ERRP is assisting in developing skills and knowledge, but importantly, the ERRP also assists in the development of South African citizens who can function effectively in the democratic society, who can adapt to changes in the labour market through shocks such as the COVID-19 pandemic.

The PSET system includes public and private education and training (E&T) institutions (universities, Technical and Vocational Education and Training (TVET) colleges, and Community Education and Training Colleges (CETCs), other state-owned post-school providing institutions (such as agriculture and nursing colleges), skills development providers (including workplaces), Sectoral Education and Training Authorities (SETAs), the National Skills Fund (NSF), plus quality assurance bodies such as SAQA, Quality Councils and Professional Bodies.

### 4. APPROACH TO THE DEVELOPMENT OF A SKILLS STRATEGY

#### 4.1 Overview

The strategy sets out a set of skills-focused interventions and activities to support the effective implementation of the ERRP. It is informed by the following approach and principles:

**Balance between short and long term:** This strategy creates a balance between short and long term interventions. We cannot respond to the short-term crisis in ways that undermine or destabilise the system; rather, the aim is that where possible we strengthen the system. The strategy is therefore intended to respond *immediately* to skills-related imperatives of the ERRP, while simultaneously ensuring that the PSET system builds skills that are required in the medium to long term. The aim is to ensure that the changes made to facilitate immediate urgent actions either do not weaken, or, in the best-case scenario, that they strengthen, institutional capacity. This requires that the strategy should: Align and integrate work that is already under way in the broader human resource development landscape and specifically within the PSET system. Consolidate and build on those aspects of the system that are working well. Align with existing policies and plans and addresses blockages. Where changes are required to policies or plans, the strategy sets out steps to achieve these changes, paying close attention to the need for careful transitions.

**Public-Private:** The strategy is directed towards both public and private education and training institutions and skills development providers (including workplaces). The idea is to strengthen partnerships between the public and private sectors with a view to improving efficiency and effectiveness.

**Demand-Led Approach:** The skills strategy is oriented to be demand-led and responsive to the world of work. It therefore identifies occupational shortages and skills gaps associated with the ERRP, with a view to ensuring that these are not a constraint to the implementation of the ERRP. This approach requires coordination between the DHET Labour Market Intelligence Research Project and the Sector Skills Plans developed by SETAs. It is expected that the provisioning of non-accredited skills programmes will be driven by industry (that is demand-led), instead of being supply driven. It is important to emphasise that a demand-led approach to skills planning does not imply that the beneficiaries of E & T programmes linked to this strategy will of necessity be guaranteed jobs. Rather, the demand-led approach intends to improve employability instead of guaranteeing employment.

**Build on and link to current plans and programmes:** The strategy builds on work that is currently being undertaken in the PSET system, and is not intended to undermine the momentum of current plans and programmes. For instance, the strategy draws on research undertaken through the DHET Labour Market Intelligence Programme (LMIP) and SETAs to identify skills needs associated with the ERRP. More specifically, research undertaken to identify the national *List of Occupations in High Demand* and the *Critical Skills List* will be drawn upon to identify skills needs linked to the ERRP. The strategy is in line with the goals of the PSET system which include the intention to improve the responsiveness of the PSET system to the world of work and to strengthen the interface between education and work. More specifically, this skills strategy links well to the national digital strategy, the DHET National Plan for PSET (NPPSET), the DHET National Skills Development Plan (NSDP) and to economic sector Master Plans. However, if necessary, current plans such as the Medium Term Strategic Framework (MTSF) and the Annual Performance Plan (APP), may be tweaked to take into account the intentions of this strategy. Targets set by the MTSF are shown in **Appendix 1** of this strategy for information purposes. In reviewing existing MTSF indicators, the DHET and the Department of Science and Innovation (DSI) has recognised that the following additional indicators need to be included to address the skills imperatives of the ERPP:

- The DSI will deliver four programmes through its entities to support 1,900 new unemployed graduates to earn an income while gaining meaningful work experience (DSI).
- The DSI will connect youth (NEET), to 225,000 opportunities through the Pathway Management Network in collaboration with DEL, DHET, NYDA, and other role players in civil society.

**Better Coordination:** The strategy recognizes the need for a coordinated response across government, business and social partners to enable its effective implementation.

**Target groups:** The approach adopted by this strategy is to ensure that:

- new entrants to the labour market are ready to access youth services and/or job opportunities;
- existing employees can be re-trained or upskilled to respond to changing demand in their sectors;
- unemployed persons can access short-term training programmes to improve employment prospects;
- students can enrol in programmes and qualifications that respond to the needs of the labour market;
- students and graduates can access Workplace-Based Learning (WBL) programmes that provide them with work experience, and
- the PSET system is strengthened, especially in relation to its responsiveness to and interface with the world of work and to the quality of its provisioning.

**Implementation of this strategy:** The strategy will be accompanied by an implementation plan, an M & E framework as well as communication plan. The DHET will be responsible for establishing coordination and reporting mechanisms to monitor progress on the implementation of this strategy.

#### 4.2 Reasons for occupational shortages and possible interventions

Occupational shortages and skills shortages exist in the labour market for a wide range of reasons. Table 1 shows some reasons why employers have difficulty in recruiting staff (have hard-to-fill vacancies), and possible interventions to address these. The interventions and actions adopted in this strategy generally link up to the reasons for occupational shortages. Table 2 provides further detail on the reasons for occupational shortages, as identified by SETAs through their engagement with employers.

This strategy identifies 103 occupations as being in shortage for the ERRP. **Appendix 2** provides a total list of these occupations, together with reasons for their shortage as well as identified interventions.

**Table 1: Reasons for occupational shortages and possible interventions**

| LABOUR MARKET CHALLENGE                                                                                                                     | INTERVENTION                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Job applicants have the appropriate qualifications, but do not have sufficient or appropriate work experience.                           | In this instance, the solution would be to expand opportunities for work experience (see <u>intervention 3</u> on workplace-based learning (WBL) in this strategy). A short-term solution to the unavailability of appropriately qualified applicants is to “import” skills (see intervention 6).                                                                                         |
| 2. Job applicants have the appropriate qualifications as well as work experience, but do not have the specific skills required for the job. | In this instance, the solution would be to provide short skills development programmes that address such skills gaps (see <u>intervention 1</u> ); and/or <u>amend programmes and curricula to respond to skills needs</u> (see intervention 5). An alternate short-term solution to the unavailability of appropriately qualified applicants is to “import” skills (see intervention 6). |
| 3. Unemployed persons do not have the skills that make them employable                                                                      | In this instance, the solution would be to provide skills that improve employability. As indicated in Table 2, these are: computer literacy, entrepreneurship skills, know-how to access government services that                                                                                                                                                                         |

| LABOUR MARKET CHALLENGE                                                                                                                                                | INTERVENTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                        | support entrepreneurship, basic literacy and numeracy skills (see interventions 1 and 7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 4. Graduates with appropriate qualifications and skills are available, but they do not have the networks and/or means to access jobs or initiate their own businesses. | In this instance, the solution would be to link graduates/work seekers to job opportunities and other kinds of youth support services (see Intervention 8-reference to the National Pathway Management Network (PMN). In addition, it will be essential to provide entrepreneurship development programmes to support self-employment (see intervention 7).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 5. Graduates associated with this occupation cannot find employment because they do not have a professional designation due to lack of work experience                 | In this instance, the solution would be to provide WBL opportunities (through candidacy) for those occupations that are identified as being in shortage (see Intervention 3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 6. Insufficient number or no applicants due to the unavailability of graduates in a particular programme or qualification.                                             | In this instance, one solution could be to increase enrolments in programmes that correspond closely to identified occupational shortages (see <u>interventions 4 and 5</u> in this strategy). In cases where qualifications do NOT exist for new and emerging occupations, (resulting in there being no appropriate candidates for available jobs), the solution could be qualifications development or the introduction of new programmes (intervention 5). Inadequate graduate output could also be the consequence of students not achieving their qualifications because they did not undertake the work experience component of their qualification (work integrated learning – WIL). In this instance, the solution would be to provide opportunities for WBL (see intervention 3). It is also possible however, that enrolments in identified programmes are adequate, but that throughput rates may be low. In this instance, the solution would be to increase throughput rates. Finally, in all scenarios, a short-term solution to the unavailability of appropriately qualified applicants is to “import” skills (see intervention 6). |
| 7. This is a new occupation in the Labour Market, and there is no registered qualification/ programme associated with this occupation.                                 | In this instance, the solution would be to develop new qualifications or expand institutions’ programme-qualification mix to include new programmes in existing qualifications (see interventions 2 and 5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. Unsuitable geographical location                                                                                                                                    | In this instance, the intervention would be to: <ul style="list-style-type: none"> <li>• Use the national pathway management system to link labour supply and demand (see Intervention 8)</li> <li>• Strengthen career development services (see Intervention 10)</li> <li>• Improve marketing</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

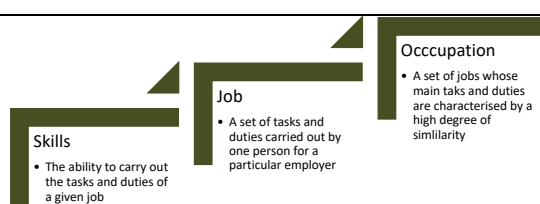
#### 4.3 Methodology adopted to identify skills needs linked to the ERRP

The strategy analyses occupational shortages and skills gaps associated with the ERRP to ensure that education and training interventions are targeted and that resources are allocated efficiently. Distinguishing between occupations and skills and understanding their relationship is important (see Glossary of Terms)<sup>8</sup>. The diagram below presents this:

---

<sup>8</sup> An occupation is defined by the set of jobs it requires, and jobs are defined by the set of skills they require.

**Figure 2: Relationship between skill, job and occupation**



Therefore, an **occupational shortage** refers to a case where an insufficient number of individuals can perform the set of jobs required for a particular occupation in demand by employers. In short, this is a case where the economy's demand for a particular occupation exceeds the PSET sector's supply. On the other hand, a skills gap is defined as a mismatch between the **tasks** an employer expects their employees to do and those they are capable of doing<sup>9</sup>.

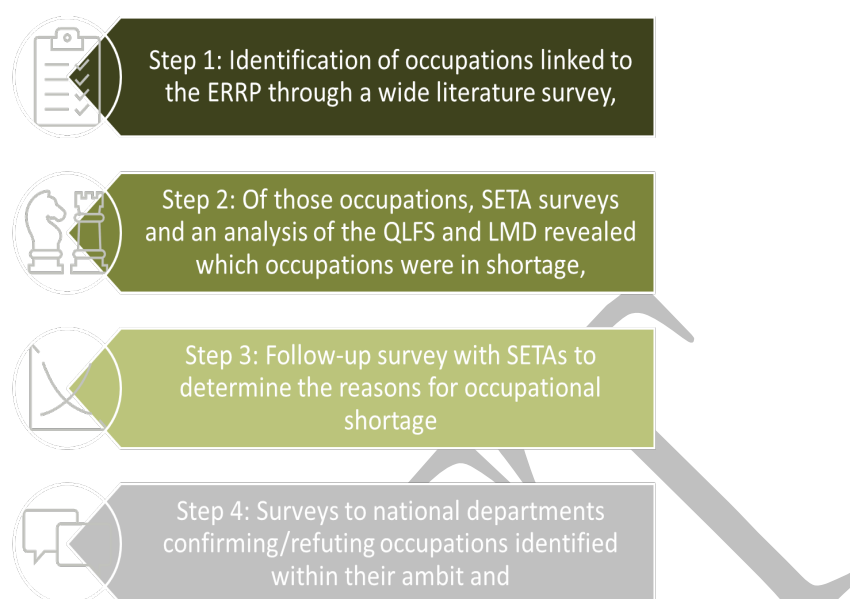
South Africa's **Organising Framework for Occupations (OFO)**<sup>10</sup> provides a fitting framework for identifying occupational shortages and skills gaps. The OFO uses the concepts of **skills and jobs** to categorise and describe occupations. Despite some limitations, the OFO makes it possible to speak to specific occupations in a common language, making the OFO an easy-to-use classification tool and an appropriate framework for analysing occupational shortages.

At a high level, the process outlined below sets out how ERRP-specific occupational shortages and skills gaps were identified:

<sup>9</sup> Levesque (2019). Understanding the skills gap- and what employers can do about it. [Online] Available at: <https://www.brookings.edu/research/understanding-the-skills-gap-and-what-employers-can-do-about-it/>

<sup>10</sup> Note: The OFO also includes a list of specialisations or alternative occupation names under each occupation

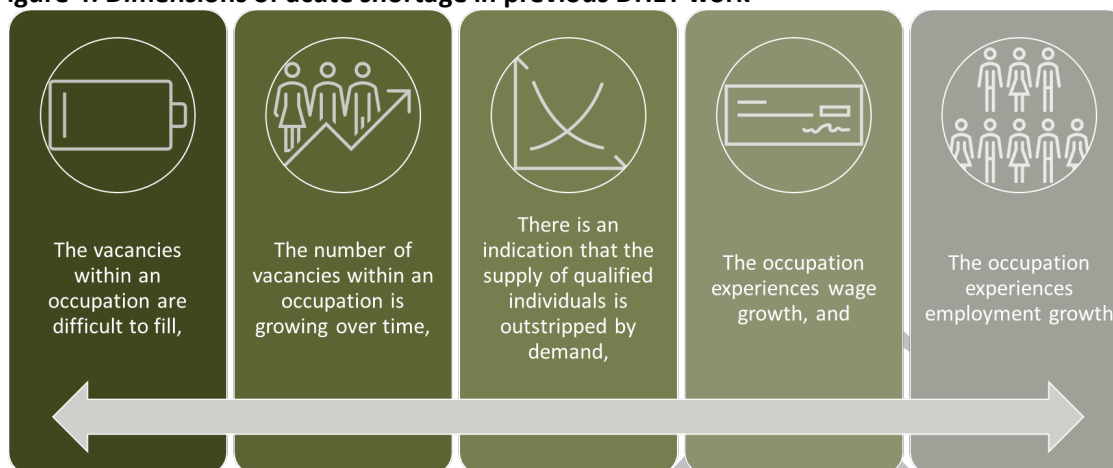
**Figure 3: Process flow of analysis of occupational shortage**



**Step 1:** As a first step, ERRP strategies and plans (summarised in [Appendix 2](#)) were reviewed to identify the economic activities that will expand due to ERRP implementation. The activities were then cross-referenced with the occupation descriptions in the OFO to identify occupations that will experience increased demand.

**Step 2:** Step two was aimed at identifying those occupations linked to the ERRP that are, indeed, in shortage. Should some of the occupations linked to the ERRP not show signs of shortage, it is unnecessary for the skills strategy to address them. Two sources of information were used for step two. First is the work previously conducted by DHET to develop the List of Priority Occupations and the Critical Skills List. Occupations were identified by developing an index of occupational shortage and identifying those occupations most in shortage according to the index score. The index was based on shortage being signalled by statistical evidence showing the dimensions below:

**Figure 4: Dimensions of acute shortage in previous DHET work<sup>11</sup>**



This analysis relied on data from the Quarterly Labour Force Survey (QLFS), the Labour Market Dynamics Survey (LMDS) and data from Career Junction (CJ).

To strengthen these findings and ensure that the most recently available information is being utilised, two SETA surveys<sup>12</sup> were conducted. The first survey was aimed at identifying occupations in shortage. An occupation was deemed to be in shortage if either the index score or the SETA surveys (which themselves relied on engagements with private and public sector representatives conducted at the end of 2020 and the beginning of 2021) identified the shortage. Additionally, the survey provided SETAs with the opportunity to identify skills gaps salient to the ERRP. Although there is very little quantitative evidence<sup>13</sup> on skills gaps across the country, engagement with SETAs, government departments and a wide berth of literature ensured the identification of such skills mismatches<sup>14</sup>. The full list of ERRP-associated occupations in shortage is provided in Appendix 3,

**Step 3:** While step 2 involved processes to identify occupational shortages and skills gaps, step 3 involved a process of understanding the reasons for the shortage. The second round of SETA surveys aimed to pinpoint why the occupations and skills identified were in shortage<sup>15</sup>. While SETA responses varied per occupation, the responses can be broadly grouped according to the following table:

<sup>11</sup> For a full description of this analysis, see the following link: <https://lmi-research.org.za/publication/2020-list-of-priority-occupations/>

<sup>12</sup> All 21 SETAs responded in the first round, with 17 SETAs responding in the second round.

<sup>13</sup> The primary sources of labour market information- the QLFS and LMDS- are at the 4<sup>th</sup> digit occupational level and do not speak to skills or competencies.

<sup>14</sup> Because there is no formal framework for analysing skills like there is an organising framework for occupations, the researchers relied on the definitions of soft and technical skills provided before to identify such gaps. These definitions were used as sieves to assess whether submissions from the SETAs or departments spoke to skills, or whether, in fact, the submissions in question spoke to occupations.

<sup>15</sup> Here, it is important to flag that SETAs used the most recent data available to them. Some of this information is complementary to what is found in the SETA submissions to DHET for the development of their respective SSP. With that said, there is no complete overlap between SSP submissions and the data provided in the survey. This is because SETA submissions to the survey related directly to the implementation of the ERRP, while the submission of evidence for the SSP is much broader.

**Table 2: Reasons for occupational shortages and SETA responses**

| Key reasons for occupational shortage                                                                                                                                                                                                                                    | SETA responses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Many employers claim that new entrants to the labour market do not have the appropriate skills required for the job, even if they have the right qualification or appropriate level of education                                                                      | <ul style="list-style-type: none"> <li>• New entrants to the labour market do not have adequate/ appropriate work experience (see Intervention 3)</li> <li>• The curriculum of the programme or qualification associated with this occupation is outdated (See Intervention 5)</li> <li>• New entrants to the labour market do not have the soft skills required for the job (See Intervention 1)</li> <li>• New entrants to the labour market lack basic literacy, numeracy and computer skills (See Intervention 1)</li> </ul> |
| 2. Many employers claim that their staff lack the technical skills required for the job                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• Employees do not have the skills required to deal with new technologies or new work processes introduced by employers (see Intervention 1)</li> <li>• Organisational restructuring or poor recruitment practices has led to mismatches between qualifications and occupations</li> <li>• The curriculum taught at E &amp; T systems is outdated and inappropriate (see intervention 5)</li> <li>• Some staff may not have sufficient work experience (see intervention 3)</li> </ul>    |
| 3. Unemployed persons do not have the skills that make them employable                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• Many unemployed persons do not have computer literacy skills</li> <li>• Many unemployed persons do not have entrepreneurship skills</li> <li>• Many unemployed persons do not have the know-how to access government services that support entrepreneurship</li> <li>• Many unemployed persons do not have basic literacy, numeracy and numeracy skills (all of these link to Interventions 1 and 7)</li> </ul>                                                                         |
| 4. Employers indicate recruitment difficulties in this occupation because an insufficient number of <b>experienced</b> applicants are applying for these jobs                                                                                                            | Applicants may have the appropriate qualification or minimum level of education, but do not have the appropriate work experience (see intervention 3)                                                                                                                                                                                                                                                                                                                                                                            |
| 5. Employers indicate recruitment difficulties in this occupation because applicants do not have the appropriate knowledge and skills (even though they have the right qualifications)                                                                                   | <ul style="list-style-type: none"> <li>• Lack of appropriate skills (see intervention 1)</li> <li>• Curriculum is inappropriate (see intervention 5)</li> <li>• Lack of/inadequate practical training at the E &amp; T institution (see intervention 10)</li> <li>• Lack of adequate/appropriate work experience (see intervention 3)</li> </ul>                                                                                                                                                                                 |
| 6. Employers indicate recruitment difficulties in this occupation because an insufficient number of <b>graduates</b> apply for these jobs. There are insufficient graduates in the field of study/qualification/programme that match the occupation in the labour market | <ul style="list-style-type: none"> <li>• Many students are unable to achieve this qualification because of lack of WBL (WIL) (see intervention 3)</li> <li>• Not enough students enrol for this qualification/programme (see intervention 4)</li> <li>• Enough students enrol but throughput rates are low resulting in a low number of graduates (see intervention 10)</li> </ul>                                                                                                                                               |
| 7. Graduates associated with this occupation cannot find employment because they do not have a professional designation                                                                                                                                                  | Graduates associated with this occupation are unable to find WBL opportunities required for professional designation (see intervention 3)                                                                                                                                                                                                                                                                                                                                                                                        |
| 8. This is a new occupation in the Labour Market.                                                                                                                                                                                                                        | There is no registered qualification associated with this occupation (see interventions 2 and 5).                                                                                                                                                                                                                                                                                                                                                                                                                                |

**Step 4:** The final set of occupational shortages and skills gaps were then sent to government departments who are set to play a significant role in implementing the ERRP, for validation and /or amendment.

#### 4.4 Stakeholder Consultations on the development of this strategy

The DHET has consulted with numerous stakeholders and social partners in the development of this strategy. In addition, it has held a technical workshop with government's Economic Sectors, Investment, Employment and Infrastructure Development (ESIEID) cluster members and priority governments departments to obtain feedback and input, as well as to validate occupations and skills identified to be in shortage in sectors identified as important for the recovery of the South African economy. The following organisations were consulted in the process of developing the Skills Strategy:

- Cabinet Lekgotla;
- Sector Education and Training Authorities (SETAs);
- National Skills Authority;
- Human Resource Development Council EXCO;
- National Economic Development and Labour Council (NEDLAC);
- Economic Sectors, Investment, Employment and Infrastructure Development (ESIEID) DG and Ministers' Clusters;
- Quality Council for Trades and Occupations (QCTO);
- Universities South Africa (USAf);
- South African Qualifications Authority (SAQA);
- Council for Higher Education (CHE);
- Technical workshop with the ESIEID Cluster members;
- Technical workshop with the priority government department's;
- National Government Departments, namely: the Departments of Trade, Industry and Competition, Basic Education, Agriculture, Land Reform & Rural Development, Communications & Digital Technology, Employment & Labour, Public Works & Infrastructure, Science & Innovation, Tourism, Public Enterprises and the Presidency, and
- Northern Cape Extended Executive Council Lekgotla;

#### 4.5 Overview of interventions and activities

This skills strategy identifies **ten interventions** and a **range of activities** associated with each. The interventions focus on two key dimensions:

**Dimension 1:** the provisioning of targeted education and training programmes, and

**Dimension 2:** the enabling of education to work transitions.

Of the ten interventions, six focus on the 1<sup>st</sup> dimension (provisioning of E &T), while four focus education to work transitions.

The identified interventions relate closely to the principle of this strategy being demand-driven. Consequently, they map well with the **reasons** for occupational shortages and skills gaps identified by employers, as shown in Tables 1 and 2 above. The interventions are also framed by other principles of this strategy as stated above.

The strategy comprises the following two dimensions each of which outline interventions and actions that support the implementation of the ERRP:

**Dimension 1: Interventions focused on the provision of targeted education and training programmes:**

1. **Expand** the provisioning of **short skills programmes** (both accredited and non-accredited) to respond to skills gaps identified in this strategy.
2. **Enable** the provisioning of **short skills programmes** (both accredited and non-accredited) that respond to skills gaps identified in this strategy.
3. Expand the provisioning of **workplace-based learning** (WBL) opportunities to respond to occupational shortages and skills gaps identified in this strategy.
4. Increase **enrolments** in **qualification-based programmes** that respond to occupational shortages identified in this strategy.
5. Review and revise education and training **qualifications, programmes and curricula** to respond to occupational shortages and skills gaps identified in this strategy.
6. Update the draft **Critical Skills List** and associated regulatory mechanisms

**Dimension 2: Interventions focused on enabling and supporting Education to Work Transitions:**

7. Strengthen **entrepreneurship development** programmes
8. Embed **skills planning** into economic planning processes and vice versa
9. Facilitate the use of the **National Pathway Management Network** (PMN) in the PSET system
10. Strengthen the **PSET** system

## **5.1 Intervention 1: Expand the provisioning of short skills programmes**

### **5.1.1. Overview of Intervention 1**

This intervention focuses on the provisioning of short skills programmes (both accredited and non-accredited) that respond directly to skills gaps identified in this strategy. In the case of non-accredited skills programmes, the emphasis is on those that are driven by industry, rather than being supply-driven. Such skills gaps usually exist because of mismatches between skills required by employers and those possessed by employees. They also exist because many new labour entrants do not have the skills and know-how to navigate the labour market, and many people do not have entrepreneurial<sup>16</sup> skills, knowledge, tools and support to establish their own businesses and organisations.

Intervention 1 is therefore aimed at ensuring the provision of agile, flexible and demand-led skills development programmes to mainly three categories of beneficiaries:

- a) **Employed persons** who require reskilling and or/upskilling, including worker education.
- b) **New entrants** to the labour market who may require work readiness, foundational, digital and other types of short skills programmes to improve their chances of employment (including self-employment)
- c) **Other unemployed persons** whose chances of employment (employability) need to be improved (including for self-employment).

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<sup>16</sup> See Intervention 7 which deals with Entrepreneurship

Importantly, the shorter, focused skills programmes envisioned here are also designed **to respond to a dynamic and changing economy**—to prepare people for new and emerging skills requirements at the workplace. Such programmes are expected to respond to all levels of skills needs – ranging from elementary to intermediate to higher level skills. The Higher Education sector has drawn attention to the need for universities to also offer short skills programmes that are demand-driven instead of being supply-led. Universities South Africa (USAf) proposes that these must be offered on a platform for lifelong learning so that such a platform becomes a permanent feature of universities.

Skills development programmes usually aim to foster either soft skills or hard skills. This division between soft and hard skills is intended to serve as a practical tool to guide skills development and should not be construed as being cast in stone since there are overlapping areas between these. While soft skills generally aim to improve overall worker effectiveness, efficiency and employability, technical skills are critical to undertaking job-specific tasks. Both are critical to ensure that the skills landscape in the country is not a hindrance to the implementation of the ERRP.

### **5.1.2 Soft Skills**

**Soft skills** are competencies that are not job-specific, but instead assist in completing tasks across a wide variety of occupations. Soft skills include, but are not limited to, critical thinking, project management, work readiness, entrepreneurial ability, teamwork, leadership, communication skills, a positive attitude or strong work ethic<sup>17</sup>. International and national research has revealed that soft skills are key to work satisfaction and improved productivity. A World Bank<sup>18</sup> study has found that soft skills comprise problem-solving, resilience, motivation, control, teamwork, initiative, confidence and ethics, while the International Labour Organisation (ILO) *Global framework on core skills for life and work in the 21st century*<sup>19</sup> identifies communication, teamwork, conflict resolution and emotional intelligence as core social and emotional skills for the 21<sup>st</sup> century. A recent survey undertaken by the Manpower Group (2021)<sup>20</sup> in South Africa draws attention to the importance of reliability, self-discipline, tolerance to stress and active learning as being key soft skills to deal with impact of Covid-19 pandemic and significant moves towards digitisation. CATHSETA has identified customer care and communication as soft skills that are essential for their economic sectors.

While some of these skills are fostered in the workplace, others can be developed by short courses. In addition, coaching and mentorship programmes both inside and outside of the workplace, are key to sustainable development. The business sector has recommended that opportunities to access tacit knowledge from local South Africans could be of tremendous value through coaching and mentoring programs. The idea is for senior or retired individuals to establish networks of support, especially for the youth.

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<sup>17</sup> Doyle (2020). Hard skills vs soft skills: what's the difference?. [Online] Available at: <https://www.thebalancecareers.com/hard-skills-vs-soft-skills-2063780>

<sup>18</sup> Guerra, Nancy; Modecki, Kathryn; Cunningham, Wendy. 2014. Developing Social-Emotional Skills for the Labor Market : The PRACTICE Model. Policy Research Working Paper;No. 7123. World Bank Group, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/20643> License: CC BY 3.0 IGO.

<sup>19</sup> ILO (2021). Global framework on core skills for life and work in the 21st century.

<sup>20</sup> Manpower Group (2021). Employment Outlook Survey, Quarter 3, 2021.

The following list of soft skills have been identified through research, including that undertaken by SETAs:

**Table 3: list of soft skills (Behavioural skills)**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Customer care, service orientation</li> <li>• Leadership</li> <li>• Coaching and mentoring</li> <li>• Problem solving and decision making</li> <li>• Communication</li> <li>• Conflict resolution and negotiation</li> <li>• Work readiness</li> <li>• Strong work ethic</li> <li>• Ethical practices</li> <li>• Teamwork and inter-personal skills</li> <li>• Entrepreneurial ability</li> <li>• Creativity</li> <li>• Cultural awareness</li> <li>• Self-management (time management, reliability, discipline, accountability, active learning, flexibility, independent action, adaptability, adaptability, tolerance to stress, diligence, resilience, motivation, initiative, confidence, positive attitude and curiosity)</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 5.1.3 “Hard” skills gaps

In many instances, skills gaps that exist among employees are specific to their job/occupation. However, labour market research undertaken by SETAs<sup>21</sup>, the DHET<sup>22</sup> and the OECD<sup>23</sup> indicates that many “hard” skills gaps also cut across the economic sectors and occupations. These skills gaps can be categorised<sup>24</sup> in the following domains as follows:

**Table 4: Transversal “Hard” Skills Gaps**

|   | DOMAIN                    | SKILLS GAPS                                                                                                                                                                                                                                      |
|---|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Foundational/Basic Skills | Reading, writing, speaking, listening, memorisation, oral and written comprehension, mathematics, critical thinking, ability to learn, digital, science, civic literacy, finance and health & safety.                                            |
| 2 | Technical Skills          | Equipment Maintenance, Equipment Selection, Installation, Operation and Control, Operation Monitoring, Operations Analysis, Programming, Quality Control Analysis, Repairing, Technology Design, Troubleshooting, occupational health and safety |
| 3 | Leadership and Management | Project management, planning, organising, coaching, mentoring, instructing, industrial relations, change management, supervisory, legal, governance                                                                                              |
| 5 | Complex problem-solving   | Identification of complex problems and reviewing related information to develop and evaluate options and implement solutions.                                                                                                                    |

<sup>21</sup> SETA Sector Skills Plans (SSPs), the national digital skills strategy, and various economic master plans

<sup>22</sup> DHET (2020). *SETA Interview Report on Skills Development*. DHET. Pretoria

<sup>23</sup> OECD (2017). *Getting Skills Right: South Africa*. OECD Publishing. Paris.

<sup>24</sup> The categories of skills used here are obtained from O’NET which is an American system for the classification of skills and occupations

Beyond these so-called hard skills, there are also a set of skills gaps that are very specific to particular sectors. These skills gaps were identified through SETA surveys and a literature review, and are broken down by economic focus areas<sup>25</sup>. These skills gaps are also identified<sup>26</sup> as having short courses available within the South African learning system (some of which are funded by SETAs) are as follows:

**Table 5: Skills gaps associated with key economic focus areas**

| Industry/Focus area                            | Skills Gap                                                      | Short courses currently funded by SETAs |
|------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------|
| Agriculture, food security and the environment | Livestock disease management                                    |                                         |
|                                                | Insect taxonomy                                                 |                                         |
|                                                | Generation and use of big data in phenotyping                   |                                         |
|                                                | Environmental policy knowledge                                  |                                         |
| Built Environment                              | Construction monitoring                                         |                                         |
|                                                | Legal liability and legislative knowledge                       |                                         |
|                                                | CAD or Computer-Aided Design                                    |                                         |
|                                                | CAM or Computer-Aided Manufacturing                             |                                         |
|                                                | Photoshop rendering                                             |                                         |
|                                                | Rigging and slinging at heights                                 |                                         |
|                                                | Attrition testing                                               |                                         |
|                                                | Occupational health and safety knowledge                        | x                                       |
|                                                | System installation and repair                                  | X                                       |
| Digital economy and global business services   | Advanced Excel                                                  |                                         |
|                                                | Cloud computing                                                 | X                                       |
|                                                | Data analysis (elementary, intermediate, and high-level skills) | X                                       |
|                                                | Machine learning                                                |                                         |
|                                                | The Internet of Things                                          |                                         |
|                                                | Blockchain technology                                           |                                         |
|                                                | Digital immersion                                               |                                         |
|                                                | Artificial Intelligence                                         |                                         |
|                                                | Foreign language skills                                         |                                         |
|                                                | Monitoring and Evaluation                                       |                                         |
|                                                | Software and systems engineering                                | X                                       |
|                                                | Cybersecurity                                                   | X                                       |
|                                                | Data science                                                    | X                                       |
|                                                | Artificial Intelligence                                         | X                                       |

<sup>25</sup> As will be noted, the list of economic focus areas are not exhaustive. For instance, the energy sector is not represented in the list of skills gaps associated with economic focus areas. This is due to a lack of information available from the SETAs and literature, and does not imply that there are no skills gaps in these focal areas.

<sup>26</sup> Although not an exhaustive framework, O'NET has a list of technical skills which have been overlaid with the inputs from SETAs, departments and the literature to provide a consistent classification of some technical skills. ONET is extremely useful in its ability to match these technical skills to occupations as well, and so, for ease of reference to assess which skills pertain to which occupations, see the following link:  
<https://www.onetonline.org/find/descriptor/browse/Skills/2.B.3/>

| Industry/Focus area | Skills Gap                                                      | Short courses currently funded by SETAs |
|---------------------|-----------------------------------------------------------------|-----------------------------------------|
| Manufacturing       | CAD or Computer-Aided Design                                    |                                         |
|                     | CAM or Computer-Aided Manufacturing                             |                                         |
|                     | Conceptual and 3D design                                        |                                         |
| Tourism             | Digitalisation of processes related to tourism                  |                                         |
|                     | Data analysis (elementary, intermediate, and high-level skills) | x                                       |
|                     | Social media marketing                                          |                                         |
|                     | Foreign language skills                                         |                                         |

*Note: Because of the evolving nature of the ERRP, such skills are subject to change or amendment given new developments along the country's road to economic recovery and reconstruction. This is to ensure that the skills strategy remains agile and adaptive.*

#### 5.1.4 Digital skills

The most cross-cutting of skills gaps are arguably linked to the digital economy (inclusive of the global business service industry) where evidence on such skills gaps is most readily available. Mismatches between employer skills needs and employee skills (skills gaps) in the digital economy might arise for multiple reasons<sup>27</sup>:

- The evolution of technology may have outpaced the number of individuals trained in particular competencies, creating skills gaps which are as a result of innovation.
- Many South Africans cannot access the internet or do not have access to computer or have had no/little exposure to the digital world. Consequently they do not have digital literacy skills.
- It is also likely that qualifications, programmes, and curricula do not foster the specific skills which employers require. This problem might relate to the quality of the education received, or simply the content covered vis-à-vis what content employers require to be covered (content could either be outdated, or unrelated to what employers require in the country).
- The brain drain phenomenon also creates occupational shortages and skills gaps within the digital economy. Specialists who leave the country take their knowledge with them, creating skills gaps in specialities without sufficiently transferring their knowledge to others.

Massive strides towards digitisation across all economic sectors are already driving the kinds of skills programmes that are required by employees. These skills are broad-ranging, encompassing basic, intermediate, and high level skills. These include a programme undertaken by ETDP SETA aimed at improving digital literacy among 50 000 ECD practitioners, teachers, and lecturers as well as initiatives by CATHSETA to support the provision of a range of digitisation skills development programmes aimed at promoting E-Tourism.

<sup>27</sup> Genesis Analytics and Knowledge Executive (2020). ICT and Digital Economy Master Plan for South Africa  
Harambee Youth Employment Accelerator (2020). Mapping of Digital and ICT Roles and Demand in South Africa  
MICTSETA (2020). Sector Skills Plan 2021/22

Stakeholders from the business community have argued that off-the-shelf international e-learning solutions should be adopted together with contact learning, as part of a blended learning approach to building digital skills. They foreground on-line learning as a key enabler for supporting and sustaining transition in a world where skills have an exponentially shrinking shelf life and where the traditional classroom lacks the scale, speed and agility required to support continuous learning in a rapidly changing and disruptive world. The business community points out that these solutions are already being widely used in the corporate world because these skills programmes are constantly updated in line with emerging technologies and are in line with required standards. The introduction of digital credentialing has also been highlighted. However, some organisations have warned against the unfettered use of Massive Open Online Courses (MOOCs) since experience has demonstrated that many of these programmes could be of poor quality.

Research undertaken by the Harambee Youth Employment Accelerator (2020)<sup>28</sup> and other sources points out to various skills gaps in the digital economy, as shown in the table below:

**Table 6: Digital skills gaps**

| Short-term digital skills gaps             | Longer term digital skills gaps |
|--------------------------------------------|---------------------------------|
| 1. Cloud architecture                      | 1. Artificial Intelligence      |
| 2. Cybersecurity                           | 2. Biotechnology                |
| 3. Data centre operations                  | 3. Blockchain                   |
| 4. Desktop support engineering             | 4. Data analysis                |
| 5. Enterprise architecture development     | 5. Data science                 |
| 6. Integrated systems development          | 6. Internet of Things           |
| 7. Design of learning management systems   | 7. Machine learning             |
| 8. Network analysis, control, and security | 8. Nanotechnology               |
| 9. Software development engineering        | 9. Quantum computing            |
| 10. Systems engineering                    | 10. Robotic automation          |

*Note: Because of the evolving nature of the ERRP, such skills are subject to change or amendment given new developments along the country's road to economic recovery and reconstruction. This is to ensure that the skills strategy remains agile and adaptive.*

### 5.1.5 Occupational shortages requiring the upskilling and reskilling of individuals

Beyond specific skills that require training for, there are certain occupations which the SETAs have identified as being in shortage because there is a mismatch between the skills that individuals within an occupation have and what skills employers require in the South African labour market. In particular, these occupations are flagged as being in shortage across the country's labour market because individuals within these occupations are insufficiently skilled at the tasks associated with their occupation.

<sup>28</sup> Harambee Youth Employment Accelerator (2020). Mapping of Digital and ICT Roles and Demand in South Africa

This knowledge product was produced in partnership with Knowledge Executive, CXO, Genesis Analytics, BPESA, the IITPSA, the Digital Council, SiMODiSA Start Up, and the Public Private Growth Initiative. The knowledge made use of digital industry surveys which spanned across 102 small, medium and large South African enterprises.

Because of this lack of skill, the following occupations require job-specific skills programmes targeted at individuals to ensure a closer match to the needs of employers and the skills that employees can provide:

**Table 7: Occupations in shortage requiring intervention one <sup>29</sup> (short skills programmes)**

| OFO Occupation                                                                                      | Occupation Description                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Agricultural Farm Manager                                                                           | Plans, directs, and coordinates production in large scale agricultural and horticultural operations such as collective farms and agricultural co-operatives to grow and harvest crops.                                                                                                             |
| Meteorologist                                                                                       | Studies the physics and dynamics of the atmosphere to increase understanding of weather and climate, and to forecast changes in the weather and long term climatic trends.                                                                                                                         |
| Biotechnologist                                                                                     | Studies the anatomy, physiology and characteristics of living organisms and isolated biological molecules, and develops new materials for applying to a range of purposes.                                                                                                                         |
| Microbiologist                                                                                      | Studies microscopic forms of life such as bacteria, viruses and protozoa.                                                                                                                                                                                                                          |
| Zoologist                                                                                           | Studies the anatomy, physiology, characteristics, ecology, behaviour and environments of animals.                                                                                                                                                                                                  |
| Agriculture Consultant                                                                              | Advises farmers, agricultural businesses, rural industries and government on the production, processing and distribution of farm products.                                                                                                                                                         |
| Food and Beverage Scientist                                                                         | Studies the physical and chemical properties of food and beverages and develops new and improved food and beverage products, and sets standards for producing, packaging and marketing food and beverages.                                                                                         |
| Earth and Soil Scientist                                                                            | Analyses the composition, structure and other physical attributes of soil.                                                                                                                                                                                                                         |
| Production Engineering Technologist (specialising as Leather and Footwear Production Technologists) | Analyses and modifies new and existing production technologies and applies them in the testing and implementation of production processes..                                                                                                                                                        |
| Civil Engineering Technologist                                                                      | Analyses and modifies new and existing engineering technologies and applies them in the testing and implementation of civil, mechanical, electrical or electronic engineering projects.                                                                                                            |
| Mechanical Engineer                                                                                 | Plans, designs, organises and oversees the assembly, erection, operation and maintenance of mechanical and process plant and installations.                                                                                                                                                        |
| Metallurgist                                                                                        | Researches, develops, controls and provides advice on processes used in extracting metals from their ores, and processes used for casting, alloying, heat treating or welding refined metals, alloys and other materials to produce commercial metal products or develop new alloys and processes. |
| Electrical Engineer                                                                                 | Designs, develops and supervises the manufacture, installation, operation and maintenance of equipment, machines and systems for the generation, distribution, utilisation and control of electric power.                                                                                          |
| Architect                                                                                           | Designs buildings and advises on the procurement of buildings, provides concepts, plans, specifications and detailed drawings, and negotiates with builders.                                                                                                                                       |
| Industrial Designer                                                                                 | Plans, designs, develops and documents industrial, commercial or consumer products for manufacture with particular emphasis on ergonomic (human)                                                                                                                                                   |

<sup>29</sup> An additional three digital economy occupations were provided by the DCDT as being in shortage and relevant to the implementation of the ERRP, namely:

- Business training manager
- Multimedia designer
- Remotely Operated Vehicle (ROV) Pilot

Although the submission did not provide inputs regarding whether these occupations were in shortage due to a lack of skills, These occupations are included here given the focus of this section on digital occupations and skills. Once more evidence regarding these occupations is provided, such occupations can be classified more accurately.

| OFO Occupation                                           | Occupation Description                                                                                                                                                                                                      |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                          | factors, marketing considerations and manufacturability, and prepares them for mass or batch production.                                                                                                                    |
| Footwear Designer                                        | Conceptualises, designs and develops footwear and related products for manufacture and prepare designs and specifications of products for mass, batch and one-off production.                                               |
| ICT Systems Analyst                                      | Evaluates processes and methods used in existing ICT systems, proposes modifications, additional system components or new systems to meet user needs as expressed in specifications and other documentation.                |
| Software Developer                                       | Software developers research, analyze and evaluate requirements for existing or new software applications and operating systems, and design, develop, test and maintain software solutions to meet these requirements.      |
| ICT Security Specialist                                  | Establishes, manages and administers an organisation's ICT security policy and procedures to ensure preventive and recovery strategies are in place, and minimise the risk of internal and external security threats.       |
| Electronic Engineering Technician                        | Conducts tests of electronic systems, collects and analyses data, and assembles circuitry in support of electronics engineers and engineering technologists.                                                                |
| Manufacturing Technician                                 | Provides technical support and services in the development of manufacturing methods, facilities and systems, and in the planning, estimating, measuring and scheduling of manufacturing work.                               |
| Building Associate                                       | Supervises construction sites, and organises and coordinates the material and human resources required.                                                                                                                     |
| Wind Turbine Power Plant Process Controller              | Plans, prepares and conducts installation, maintenance and component assembly for wind turbine systems and facilities and equipment. Assembles, installs and maintains wind turbines and associated equipment and compounds |
| Solar Photovoltaic Service Technician                    | Performs maintenance in installations including related inverters in decommissioning of whole or part of a solar PV installation and isolation                                                                              |
| Integrated Manufacturing Line Process Control Technician | Provides technical support and services in the development of manufacturing methods, facilities and systems, and in the planning, estimating, measuring and scheduling of an integrated manufacturing line.                 |
| Agricultural Technician                                  | Performs tests and experiments, and provides technical support to assist agricultural scientists and technologists in areas such as research, production, servicing and marketing.                                          |
| Safety Inspector/Medical Equipment Inspector             | Inspects machines, equipment, working conditions and public places to ensure compliance with government and industry standards and regulations, in relation to occupational health and safety.                              |
| Purchasing Officer                                       | Prepares purchase orders, monitors supply sources and negotiates contracts with suppliers.                                                                                                                                  |
| Carpenter                                                | Constructs, erects, installs, renovates and repairs structures and fixtures of wood, plywood, wallboard and other materials.                                                                                                |
| Air-conditioning and Refrigeration Mechanic              | Installs, maintains and repairs piping, ducting and equipment for heating, cooling and ventilation of buildings or vessels.                                                                                                 |
| Refrigeration Mechanic                                   | Assembles, installs, maintains and repairs industrial, commercial and domestic air-conditioning and refrigeration systems and equipment.                                                                                    |
| Steel Fixer                                              | Positions and secures steel bars and steel mesh in concrete forms to reinforce concrete structures.                                                                                                                         |
| Metal Machinist                                          | Sets up and operates machine tools to shape and form metal stock and castings to fine tolerances, using detailed drawings and specifications.                                                                               |
| Fitter and Turner                                        | Fits, assembles, grinds and shapes metal parts and sub-assemblies to fabricate production machines and other equipment.                                                                                                     |
| Cabinet Maker                                            | Fabricates or repairs wooden furniture, and fits and assembles prepared parts to make or repair furniture.                                                                                                                  |
| Furniture Finisher                                       | Applies finishes such as stain, lacquer, paint, oil and varnish to furniture, and polishes and waxes finished furniture surfaces.                                                                                           |
| Wood Machinist                                           | Cuts, planes, turns, shapes and sands wood stock to specifications.                                                                                                                                                         |

| OFO Occupation                                       | Occupation Description                                                                                                                                                                                                                                      |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Apparel and related pattern maker                    | Produces sets of master patterns following sketches, sample articles and design specifications, and cuts out patterns for garments, footwear and general goods.                                                                                             |
| Upholsterer                                          | Makes, rebuilds and repairs upholstered furniture such as chairs, sofas and car seats.                                                                                                                                                                      |
| Diver                                                | Swims underwater to undertake tasks such as seafood gathering, research, salvage and construction.                                                                                                                                                          |
| Quality Controller (Manufacturing)                   | Conducts in-line and/or end-line quality inspections and/or analyses final manufactured product to ensure conformance to customer specification. Identify and investigate causes of non-conformance. Recommend corrective action to address non-conformance |
| Metal Processing Plant Operator                      | Operates, monitors, adjusts and maintains, single process machinery and equipment to process and convert mineral ores and refine, harden, roll and extrude metals.                                                                                          |
| Plastic Compounding and Reclamation Machine Operator | Operates mixing and grinding machines to prepare plastic powders, liquid blends and recycle waste plastic materials from factory operations.                                                                                                                |
| Leather Processing Machine Operator                  | Operates machines and equipment to convert raw hides and skins into finished leather for use in clothing, footwear, upholstery and leather goods.                                                                                                           |
| Footwear Cutting Production Machine Operator         | Prepares, sets up and operates footwear clicking or cutting machinery and equipment.                                                                                                                                                                        |
| Footwear Closing Production Machine Operator         | Prepares, sets up and operates footwear sewing or closing machines.                                                                                                                                                                                         |
| Footwear Bottom Stock Production Machine Operator    | Prepares, sets up and operates footwear bottom stock machinery and equipment.                                                                                                                                                                               |
| Footwear Lasting Production Machine Operator         | Prepares, sets up and operates footwear lasting machinery and equipment.                                                                                                                                                                                    |
| Footwear Finishing Production Machine Operator       | Prepares, sets up and operates footwear finishing machinery and equipment.                                                                                                                                                                                  |
| Seafood Processing Machine Operator                  | Sets, operates and attends machinery used to process fish.                                                                                                                                                                                                  |
| Product Assembler                                    | Assembles, according to strictly laid down procedures various products that do not include electronic, electrical, or mechanical components.                                                                                                                |
| Forklift Driver                                      | Operates a forklift to move bulk materials, containers, crates, palletised goods, cartons and bales.                                                                                                                                                        |
| Timber and Wood Process Worker                       | Performs routine tasks in paper and pulp mills, sawmills, timber yards, and wood processing and timber products factories.                                                                                                                                  |
| Food and Beverage Factory Worker                     | Performs routine tasks in manufacturing food and beverages.                                                                                                                                                                                                 |
| Waterside Worker                                     | Transfers cargo between ships and other forms of transport or storage facilities.                                                                                                                                                                           |

*Note: Because of the evolving nature of the ERRP, such occupations are subject to change or amendment given new developments along the country's road to economic recovery and reconstruction. This is to ensure that the skills strategy remains agile and adaptive.*

#### 6.1.6 Actions:

- **Provisioning:** Public and private skills development providers, employers, labour organisations as well as Universities and TVET and Community and Training Colleges should fast track the provisioning of short skills programmes (accredited and non-accredited) that respond to the skills gaps identified in this strategy. The DHET should ensure that its own Annual Performance Plans (APPs) and that of public education and training institutions, the NSF and SETAs reflect targets for the provisioning of ERRP-linked short skills programmes. The provisioning of short skills programmes should be driven by industry and should include worker education programmes.

- **Digitisation:** The DSI needs to scale up its initiatives such as *mLab*, *Data Science for Impact* and the *Decision Enhancement (DSIDE)* programme, which gives students the opportunity to be mentored by experienced members of the data science community. DHET will work with relevant SETAs, the Department of Telecommunications and Postal Services as well as the Presidency to ensure a coordinated response to implementing the digital skills strategy.
- **Coordination:** DHET should work closely with other government departments such as the Department of Education and Labour (DEL), National Treasury, the Project Office in the Presidency (PMO) and the Department of Trade, Industry and Competition (DTIC) to ensure that its skills development interventions are part of overarching efforts to address skills gaps in the country.

## 5.2 INTERVENTION TWO: Enabling the provision of targeted skills programmes

### 5.2.1 Overview of Intervention 2

This intervention is aimed at enabling the development and provision of agile and flexible demand-led skills training, especially short skills development programmes that can be implemented immediately by both public and private skills development providers.

Stakeholders have noted the following challenges in relation to processes that involve the disbursement of the Discretionary Grant, which is intended to support skills development in the country:

- The processes to register part-qualifications are too long and cumbersome.
- Employers and skills development providers face a barrage of obstacles and “unrealistic bureaucratic requirements”<sup>30</sup> in their attempts to provide accredited and non-accredited skills programmes. These problems are linked to the education and training quality assurance system in South Africa and to the excessive demands of SETA processes to access the Discretionary Grant.
- Skills Development Providers are only accredited if they provide programmes that are linked to qualification pathways. Such a requirement does not work in instances where appropriate registered qualifications do not yet exist. This approach also compromises the principle of an agile and responsive skills system.
- QCTO qualification development processes are too dependent on external consultants. As a result, such processes are lengthened and there is little opportunity to grow institutional memory.
- SETAs and the NSF do not provide sufficient funding for non-accredited programmes. Nor do they avail funding for vendor-provided skills programmes that could be updated, agile,

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<sup>30</sup> Input from Nedlac: Business Sector

and appropriate to the needs of the labour market. The need for short-term adjustments to funding mechanisms is driven by deep levels of frustration experienced by employers who remain hampered by bureaucratic and administrative burdens of the SETA system. It is expected that the revision of SETA Grant Regulations and Skills Development Act (Act 97 of 1998) and the SETA Standard Constitution will be key to addressing this challenge in the medium to long term.

- The matter of vendor certification has come to the fore, especially in relation to the provision of digital skills. Given rapid changes in technology and work processes, vendors are well placed to provide skills programmes that cannot be quality assured quickly through state quality assurance processes. Examples of digital skills provided by major vendors are: Microsoft Azure Data Science, Google Cloud Development, AWS Cloud Practitioner; Microsoft Azure DevOps Engineering; CISCO Certified Network Professionals; Google Cloud Security Engineering; AWS Machine Learning.
- This intervention comprises two models, each of which encapsulate two different combinations of quality assurance and funding mechanisms. The intention is to enable faster turn-around of training than is possible in the current system, while still ensuring the quality of these programmes, and while not destabilising the broader quality assurance system.

**The first model** works with the existing quality assurance system. Two changes will be implemented. The first is that the CHE and QCTO, in consultation with SAQA, will urgently establish and implement streamlined, efficient and user-friendly processes to register part-qualifications that enable the successful implementation of the ERRP. The objective is to fast-track the development and registration of part-qualifications that do not yet exist. The second imperative builds on work that QCTO has initiated in relation to the development of accredited skills programmes that are not necessarily linked to qualification pathways. This represents a departure from the current model which insists on programmes being accredited only when they are part of existing qualifications.. To support the ERRP, QCTO and CHE will be required to accredit skills development providers to offer programmes that are not linked to registered qualifications or to pathways that lead to qualifications. They are encouraged to accredit skills programmes that respond to the ERRP and that are identified by industry associations, community organisations and education and training providers.

**The second model** builds on the pay-for-performance model piloted by the *Jobs Fund* together with *Yellowwoods and Harambee*. It creates a mechanism that allows for short, non-accredited programmes identified by industry bodies that need to be funded and quality assured. This model allows SETAs and the NSF to fund training programmes that meet demand for skills in real time, and, *inter-alia*, transition young people into income-earning opportunities. The pay-for-performance model allows SETAs to act as outcomes-based funders paying against clear milestones set out in rate cards which stipulate the funds that have been allocated to each skills development intervention to employment and the outcomes required from training providers.

It is proposed that in this model SETAs and the NSF will partner with industry bodies who will act as the intermediary for training providers. This ensures strong industry ownership of the programme as well as an open and transparent process. An example of this model is provided in Appendix 5.

### 5.2.2 Actions:

- a) **Registration of part-qualifications:** SAQA, together with CHE and QCTO, will urgently establish and implement efficient, user-friendly, streamlined processes to register part-qualifications linked to skills gaps identified in this strategy.
- b) **Accreditation of providers:** QCTO, in consultation with SAQA (where necessary), will adopt the following measures:
- fast-track the accreditation of skills development providers, including education and training institutions, that provide **accredited** skills programmes to respond to skills gaps identified in this strategy.
  - waive the requirement for qualification pathways for skills programmes that respond to the skills gaps identified in this strategy and those that have been identified by industry associations. In so doing, QCTO will accredit skills development providers, including education and training institutions, to offer skills programmes identified in this strategy and those that have been identified by industry associations.
  - Reallocate funds to employ additional staff who will undertake or oversee qualification development internally in order to improve system efficiency and turn-around times for qualification development.
- c) **Dedicated structure:** SAQA, together with QCTO, Umalusi and the CHE should establish a dedicated structure comprising quality councils and other stakeholders that would recommend how accreditation and qualification registration processes could be simplified, fast-tracked and be made user-friendly, as well as to unblock articulation blockages. This will be a streamlined structure led by the CEO of a Quality Council.
- d) **Funding:** The DHET, NSF, SETAs, other government departments (including local government) and public entities will establish funding windows to support the provisioning of skills programmes (accredited and non-accredited) that respond to the skills gaps identified in this strategy, including those associated with worker education. The funding window will support both accredited and non-accredited skills programmes in ERRP priority areas.
- e) **Pay for Performance Model:** SETAs and the NSF will adopt the pay for performance model to fund skills development programmes linked to skills gaps identified in this strategy, as well as skills that are designated as being important by industry associations and individual employers.
- D) **Vendor Certification:** SETAs, the NSF, government departments and entities are encouraged to broaden access to and fund skills development programmes that are certified by vendors, particularly those who provide programmes linked to the skills gaps identified in this strategy. Treasury will review procurement processes to permit universities, SETAs, TVET Colleges and other government departments to procure services of vendors offering specialised/company specific skills development programmes.

- E) Review of SETA systems and processes:** The DHET is required to analyse the shortcomings of SETA systems and processes in relation to accreditation and funding and to address these.

### **5.3 INTERVENTION THREE: Expand the provisioning of workplace-based learning (WBL) opportunities**

The purpose of this intervention is to expand the provisioning of workplace-based learning (WBL) programmes that respond to the occupational shortages and skills gaps identified in this strategy. The focus of this intervention is therefore on ensuring support for the range of WBL programmes referred to in the *SETAs WBL Programme Agreement Regulation, 2018*<sup>31</sup>, as follows:

- Work Integrated Learning (WIL) that **students** require to complete qualifications (through learnerships, apprenticeships, cadetships and student internships).
- Work experience that **graduates** require after completing a qualification in order to successfully transition into the labour market (through graduate internships).
- Work experience that **graduates** require to achieve professional recognition by a professional body (through candidacy programmes).

WBL programmes have been highlighted as a key priority in the Presidential Youth Employment Intervention especially in relation to the high numbers of students who have completed Nated programmes at TVET Colleges and who require workplace experience in order to attain their N Diploma as well as those University students who require workplace experience as part of their qualification and/or professional recognition. This intervention is also critical for learners undertaking artisanal programmes who require workplace experience in order to qualify as an artisan. In the absence of WBL opportunities, these students have little opportunity to complete their qualifications or undertake trade tests. Covid-19 has exacerbated this problem since most workplaces have cut down on the numbers of workers at the workplace at a given point in time. Even when students are able to successfully graduate, often they are unable to find employment owing to lack of work experience. In some cases, the economy is unable to absorb these individuals once they have completed their tertiary education. This breeds a set of young people who have qualifications but no access to the labour market, creating a large supply of qualified but untrained individuals which the labour market will struggle to absorb in the future. Although WBL programmes cannot guarantee employment to students and graduates, they do improve employment prospects for young people.

The following key problems have been identified in relation to WBL:

- a) The Business sector has pointed out that the tax incentive for learnerships (which includes apprenticeships) ends in April 2022. They therefore suggest that there may be merit in extending the term of S12H of the Tax Act which allows for a stipend allowance for unemployed individuals that go through skills programmes<sup>32</sup>.

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<sup>31</sup> DHET (2018). SETAs Workplace-Based Learning Programme Agreement Regulations. Gazette No 42037. Pretoria

<sup>32</sup> Section 12H of the Income Tax Act[1] allows an employer to claim a “learnership allowance” in respect of registered learnership agreements entered into or completed during a year of assessment. For purposes of section 12H the learnership agreement must be registered in accordance with the Skills Development Act.

- b) Business has also proposed the need to optimise the BBBEE skills development scorecard to recognise spend on training, and to review other tax incentives such as the Employment Tax Incentive and the Youth Employment Services (YES) initiative which had aimed to create 1 million internships for unemployed youth.
- c) At this stage, the DHET does not have data about the number of students who require WBL to complete their qualifications and nor is information available about possible occupations to which such students could be linked. This problem needs to be addressed so that students could be matched to appropriate WBL opportunities. Currently there are many initiatives to expand WBL opportunities. These include:

**International partnerships:** Two colleges, namely Majuba and Ekurhuleni West TVET colleges have a partnership with the Singapore Institute for TVET to utilise their workshops and equipment for more extensive and relevant workplace training.

**New workshops:** The DHET has established two workshops to assist in priority trades such as Electricians and Boiler Making for APRL candidates seeking workplace experience.

**Learner grants:** DHET has increased the learner grant for employers who place learners in the apprenticeship system, from R165 000 to R206 290 from 1 April 2021.

**Centre of Specialisation:** The DHET, with support from the NSF has initiated a major project, namely the Centres of Specialization (COS) project, to enable the expansion of quality artisan development programmes. The project is intended to ensure that apprenticeship opportunities are available for 16 critical trades needed to support infrastructure development in SA. Employers and industry associations have been closely involved the project, not only in facilitating access to apprenticeship opportunities, but to also inform the curriculum for artisan development. The Business sector has indicated that it may be wise not to expand the roll of the COS programme until sufficient insights have been obtained into the effectiveness and efficiency of the programme. There may also be other models that could be used for non-trade sectors such as those used by Global Business Services like Career Box and ShadowCareers. This allows for a more cost-effective model as the infrastructure for practical training does not need to be procured and it also consolidates the partnership with industry in a way that also reduces the training costs for employers.

According to analysis from labour market research, the following occupations risk the effective roll out of the ERRP because job applicants lack adequate or appropriate work experience:

**Table 8: Occupations in shortage requiring intervention three (WBL)**

| Name of Occupation                                           | Qualification                                                                                                                                                                                                            |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturing Operations Manager                             | Advanced Diploma in Operations Management at NQF 7; Bachelor of Commerce: Supply Chain and Operations Management at NQF 7; Postgraduate Diploma in Operations Management at NQF 8                                        |
| Quality Manager                                              | National Diploma in Engineering (Computer Systems) NQF 8; Bachelor of Technology in Quality Management NQF 7; Master of Technology in Quality Management NQF 9; National Diploma in Engineering (Computer Systems) NQF 8 |
| Construction Project Manager                                 | Postgraduate Diploma in Engineering Construction Project Management at NQF 8                                                                                                                                             |
| ICT Project Manager                                          | According to the Quality Council for Trades and Occupations, a qualification for managers should be a qualification at NQF 6, 7 or 8                                                                                     |
| Agricultural Scientist                                       | According to the Quality Council for Trades and Occupations, a qualification for managers, professionals and associate-professionals should be a qualification at NQF 6, 7 or 8                                          |
| Environmental Scientist                                      | Advanced Diploma in Environmental Sciences at NQF 7 ; Bachelor of Arts in Geographical and Environmental Science at NQF 7 ; Bachelor of Science in Environmental Sciences at NQF 7                                       |
| Civil Engineer                                               | Advanced Diploma in Civil Engineering at NQF 7 ; Bachelor of Engineering in Civil Engineering at NQF 8; Postgraduate Diploma in Civil Engineering at NQF 8                                                               |
| Quantity Surveyor                                            | Advanced Diploma in Quantity Surveying at NQF 7; Bachelor of Quantity Surveying at NQF 7; Bachelor of Science Honours in Quantity Surveying at NQF 8                                                                     |
| Electrical Engineer                                          | Bachelor of Engineering Honours in Electrical Engineering at NQF 8; Bachelor of Engineering in Electrical and Electronic Engineering at NQF 8; Bachelor of Engineering in Electrical Engineering at NQF 8                |
| Safety, Health, Environment and Quality (SHE&Q) Practitioner | Occupational Certificate: Safety, Health and Quality Practitioner (Occupational Health and Safety Practitioner) NQF 5                                                                                                    |
| Programmer Analyst                                           | Bachelor of Information Technology at NQF 7                                                                                                                                                                              |
| Civil Engineering Technician                                 | National Diploma in Civil Engineering, NQF 6; Diploma in Civil Engineering, NQF 6                                                                                                                                        |
| Electrical Engineering Technician                            | National Diploma in Electrical Engineering, NQF Level 6; Diploma in Electrical Engineering, NQF Level 6                                                                                                                  |
| Production / Operations Supervisor (Manufacturing)           | Bachelor's degree specific to an industry NQF 7                                                                                                                                                                          |
| Maintenance Planner                                          | National Certificate in Maintenance Co-ordination at NQF 5                                                                                                                                                               |
| Wind Turbine Power Plant Process Controller                  |                                                                                                                                                                                                                          |
| ICT Communications Assistant                                 | Diploma in Computer NQF 6; Bachelor of Computer Technology NQF 7; Diploma in Computer Science NQF 6                                                                                                                      |
| Steel Fixer                                                  | National Certificate: NQF 3 Iron and Steel                                                                                                                                                                               |
| Toolmaker                                                    | Learnership – Mechanical Engineering (Machining) (Tool, Jig an Die Maker) NQF 4; National Certificate: NQF 1 (Engineering Studies); ; Learnership – Mechanical Engineering (Machining) (Tool, Jig an Die Maker) NQF 4    |
| Lift Mechanic                                                | Occupational Certificate: Lift Mechanic, L4                                                                                                                                                                              |
| Leather Processing Machine Operator                          | National Certificate: CTFL Manufacturing Processes (NQF 2)                                                                                                                                                               |
| Product Assembler                                            | National Certificate: CTFL Manufacturing Processes (NQF 2)                                                                                                                                                               |

*Note: Because of the evolving nature of the ERRP, such occupations are subject to change or amendment given new developments along the country's road to economic recovery and reconstruction. This is to ensure that the skills strategy remains agile and adaptive.*

#### 6.1.2 Actions:

- a) **Expansion of WBL:** SETAs and the NSF will increase opportunities for WBL significantly and will reset their APP targets in response to this strategy. Employers need to open up spaces for WBL, drawing on all available incentives.
- b) **Funding:** SETAs and the NSF will redirect their funding of WBL beneficiaries towards those occupations that are in shortage (as indicated in Table 8) and the skills gaps identified in Tables 3, 4, 5, 6 and 7.
- c) **Tax Incentive:** Treasury will extend the period of S12H of the Tax Act, which ends in April 2022 in order to continue incentivising the expansion of WBL through learnerships and other modalities.
- d) **Coordination of subsidies and incentives:** DHET will participate in a study on the coherence of levers used by government (such as the Employment Tax Incentive, incentives linked to the YES campaign, and BBBEE) to subsidise and incentivise WBL programmes (learnerships, apprenticeships, internships etc). The study is led by Treasury and the Project Management Office in the Presidency.
- e) **Data:** DHET will collate data and information about students and graduates who require all forms of WBL, namely, apprenticeships, learnerships, student internships, graduate internships and candidacy, and share this with the *Presidential Youth Employment and Youth Employment Services (YES)* interventions to enhance access to WBL opportunities.
- f) **DHET/DSI:** The DHET and DSI will work together to strengthen the Technology Localisation and Technology Stations Programmes to expand WBL opportunities.
- g) **Utilisation of infrastructure programme:** DHET will work with the Departments of Employment and Labour (DEL) and Public Works and Infrastructure (DPWI) to develop a plan on how to utilize government's infrastructure development programme for artisan training.
- h) **COS:** A midterm evaluation of the CoS has been concluded and has recommended numerous enhancements to the current model. In order to build on the gains made thus far, the existing CoS project will be allowed to continue enrolments, however a cautious approach will be required for the further expansion of different colleges and different occupations.

**5.4 INTERVENTION FOUR:** Increase enrolments in qualification-based programmes that respond to occupational shortages identified in this strategy.

**5.4.1 Overview**

This intervention aims to increase the number of students enrolled at public and private education and training institutions in qualification-based programmes **that respond to occupational shortages identified in this strategy**. It is intended to expand access to programmes where the numbers of students who are currently pursuing particular areas of study are insufficient to meet labour market demand. The business sector has advised that linking enrolment to occupational shortages will improve the employability of graduates. It recommends that E & T institutions reconsider student enrolment in redundant and irrelevant programmes that do not lead to employment opportunities. The Business sector highlights further that issues related to the applicability of programmes, the quality and throughput of learners and the opportunities to find employment once qualified are addressed as opposed to an over-emphasis on enrolment numbers.

In order to improve enrolment in those programmes that respond to the ERRP, it is essential to remove barriers to access to such programmes. One obvious obstacle is funding, which could be addressed by availing bursaries to students who are keen to enrol in targeted programmes. Another is to redirect institutional enrolment planning so that emphasis is placed on those programmes that speak to occupational shortages. Expanding student enrolment in programmes that support the implementation of the ERRP can also be strengthened by career development strategies that encourage students to enrol in such programmes.

Labour market research undertaken to identify occupational shortages associated with the ERRP has identified the following occupations that are in shortage because of low enrolment in associated programmes/qualifications. These are as follows:

**Table 9: Occupations in shortage requiring intervention four (increased enrolment)**

| Name of Occupation                       | Relevant Qualifications                                                                                                                                        | 2020 enrolments | 2019 graduates | Unemployed graduates (June 2021) |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------------------------|
| Research and Development Manager         | NQF levels 8, 9 or 10                                                                                                                                          |                 |                | 110                              |
| Call or Contact Centre Manager           | NQF Levels 6, 7 or 8                                                                                                                                           |                 |                | 81                               |
| Energy Engineer                          | Bachelor of Commerce Honours in Energy Studies at NQF 8; Bachelor of Science Honours in Energy Studies at NQF 8                                                |                 |                | 16                               |
| Early Childhood Development Practitioner | Bachelor of Primary Education in Early Childhood Development at NQF Level 7; Occupational Certificate: Early Childhood Development Practitioner at NQF Level 5 | 148             | 167            | 442                              |
| Data Scientist                           | Bachelor of Science in Data Science at NQF 7; Postgraduate Diploma in Data Science at NQF 8                                                                    | 3218            | 361            | 0                                |
| Programmer Analyst                       | Bachelor of Information Technology at NQF 7                                                                                                                    | 5665            | 113            | 84                               |

| Name of Occupation                                 | Relevant Qualifications                                                                                                                                                                        | 2020 enrolments | 2019 graduates | Unemployed graduates (June 2021) |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------|----------------------------------|
| Web Developer                                      | Diploma in Information Technology in Web Development at NQF 6 ; Advanced Certificate in Web Development at NQF 6; Bachelor of Information Technology in Web Design and Development at NQF 7    | 171             | 21             | 37                               |
| Computer Network and Systems Engineer              | Relevant qualification at NQF level 8                                                                                                                                                          | 5772            | 589            | 193                              |
| Wind Turbine Power Plant Process Controller        |                                                                                                                                                                                                |                 |                | 27                               |
| Food and Beverage Manufacturing Process Controller | National Diploma in Electrical and Electronic Engineering, NQF Level 6; Diploma in Electrical and Electronic Engineering, NQF Level 6                                                          | 7436            | 1398           | 395                              |
| Inbound Contact Centre Consultant                  | National Certificate: Contact Centre Support NQF 2; National Certificate: Contact Centre and Business Process Support NQF 3                                                                    |                 |                | 352                              |
| Contact Centre Real Time Advisor                   | National Diploma Contact Centre Management, NQF 5                                                                                                                                              |                 |                | 87                               |
| Horticultural Farmer                               | National Certificate (Vocational) in Agriculture (NQF 4); Diploma in Agriculture NQF 6; Bachelor of Agriculture (Horticulture) NQF 7; National Certificate (Vocational) in Agriculture (NQF 4) | 1121            |                | 54                               |
| Plumber                                            | Further Education and Training Certificate: Plumbing or; Occupational Certificate: Plumber (General) on the QQSF                                                                               | 666             |                | 3012                             |
| Refrigeration Mechanic                             | National Certificate: NQF 3 Engineering Studies; Air-conditioning, Refrigeration and Ventilation NQF 4                                                                                         | 43686           |                | 33                               |
| Mechanical Equipment Repairer                      | Supervision of Construction (Roads and Earthworks) Level 4                                                                                                                                     |                 |                | 179                              |
| Electrician                                        | Occupational Certificate: Electrician, L4                                                                                                                                                      | 465             |                | 4748                             |
| Instrument Mechanician/Medical Equipment Repairer  | National Certificate N3 Engineering Studies (NQF 3)                                                                                                                                            | 43672           |                | 160                              |
| Crop Produce Analyst                               | Occupational Certificate: Crop Produce Analyst, NQF 5                                                                                                                                          |                 |                | 22                               |
| Leather Processing Machine Operator                | Clothing Textile Footwear and Leather Manufacturing Processes NQF Level 2                                                                                                                      |                 |                | 116                              |
| Paper and Pulp Mill Operator                       | National Certificate: Engineering Studies (NQF 4)                                                                                                                                              | 35352           |                | 82                               |

*Note: Because of the evolving nature of the ERRP, such occupations are subject to change or amendment given new developments along the country's road to economic recovery and reconstruction. This is to ensure that the skills strategy remains agile and adaptive.*

#### **5.4.2 Actions**

- a) **Enrolment Planning:** Universities and TVET Colleges will revisit their enrolment plans to incentivise student enrolment in qualifications and programmes that are key to the effective implementation of the ERRP.
- b) **Funding for E & T institutions:** SETAs and the NSF will redirect their funds to support TVET Colleges, universities and Community Education and Training Colleges (CETCs) that may seek to expand enrolment in targeted programmes or that may require funds for infrastructure (especially workshops), equipment and lecturer development.
- c) **Student Bursaries:** SETAs and the NSF will redirect their funds to support students who enrol in programmes that are linked to occupational shortages (as identified in Table 9 above).
- d) **Coordination:** DHET will initiate processes to ensure that funding from the fiscus and skills levy complement each other. This is necessary to allow for identified programmes to be implemented at scale.

## 5.5 INTERVENTION 5: Review and revise education and training qualifications, programmes and curricula

### 5.5.1 Overview

This intervention focuses on the need for public and private education and training institutions and skills development providers to review and revise their qualifications, programmes and curricula to respond to occupational shortages and skills gaps identified in this strategy. The intention is to ensure that E & T institutions and skills development providers are assisted to adapt qualifications and programmes to the needs of the ERRP.

The intervention therefore focuses on putting in place mechanisms to review existing qualifications, programmes, and curricula so that they are more responsive to the needs of the economy. The review is expected to produce graduates who have the skills required to ensure the successful implementation of the ERRP. The assumption is that while curricula offered in E & T institutions are broadly appropriate for preparing learners to work in a range of occupations, there may be instances where adaptations are required to respond to occupational shortages and skills gaps identified in this strategy.

Public and private Colleges, Universities and Skills Development Providers are therefore encouraged to rationalise programmes that are not responsive to the needs of the economy as part of their annual PQM review processes. In so doing they are expected to work closely with professional bodies and/or industry bodies in processes that review qualifications, programmes and curricula. While this strategy acknowledges that it takes time to change PQMs and curricula since they involve preparing lecturers, developing curricula, ensuring the availability of appropriate infrastructure and equipment, it also emphasises the importance of the need for such change in order to improve graduate employability. It is encouraging to note that a diverse range of initiatives are already under way to develop qualifications and revise PQMs and curricula. These are as follows:

- **International partnerships:** Discussions are underway with BIBB (Germany) and QCTO to set up an expert group to support qualification development processes.
- **Enrolment Planning:** The DHET is currently reviewing low enrolment in NCV programmes
- **Subject Review:** 38 NATED subjects in high demand were reviewed in 2019/20 and 14 of these updated in Jan 2021. The remaining 24 subjects will be implemented by 2022. Thereafter 10 subjects per annum will be reviewed based on demand and the need for specific content to be updated.
- **Industry Initiatives :** TVET Colleges and key industry bodies such as the Institute of Plumbers South Africa (IOPSA) and the National Association of Automotive Component and Allied Manufacturers (NAACAM), together with the National Business Initiative (NBI) and the International Youth Foundation (IYF) have launched the Installation Repair and Maintenance (IRM) – and Auto (components) High Gear initiatives. (. These interventions seek to translate the analysis of demand into the curriculum through adapting related modules. The models also cement a partnership approach whereby lecturers in the TVET colleges are supported by industry to ensure the relevance of the provision.
- **Research on qualifications and programmes:** SETAs have identified various TVET programmes needing amendment or alignment to sector-specific needs. The qualifications of nineteen occupations have been identified as requiring amendments or updates. Of these, nine are required for the auto- and medical equipment manufacturing industries.

Labour market research undertaken to identify occupational shortages associated with the ERRP has identified the following occupations that are in shortage because of sub-optimal curricula, the mismatch between what employers require and what prospective employees are taught in their

syllabi, or because there is no formal curriculum in place to train such individuals. These are as follows:

**Table 10: Occupations in shortage requiring intervention five (review of qualifications, programmes and curricula)**

| OFO Description                             | Minimum Qualification                                                                                                                                                                                                                   | Preliminary number of enrolled (2020) | Graduated (2019) | Number of individuals unemployed (June 2021) |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|------------------|----------------------------------------------|
| Call or Contact Centre Manager              | NQF Level 6, 7 or 8                                                                                                                                                                                                                     |                                       |                  | 81                                           |
| Energy Engineering Technologist             | Diploma at NQF Level 6                                                                                                                                                                                                                  |                                       |                  | 8                                            |
| ICT Systems Analyst                         | Advanced Diploma in Information and Communications Technology at NQF 7                                                                                                                                                                  | 1577                                  | 152              | 117                                          |
| Developer Programmer                        | Diploma in Information Technology in Software Development at NQF 6 ; Bachelor of Science in Software Development at NQF 7 ; Postgraduate Diploma in Information and Communication Technology in Software Development and Media at NQF 8 | 5665                                  | 113              | 71                                           |
| Web Developer                               | Diploma in Information Technology in Web Development at NQF 6 ; Advanced Certificate in Web Development at NQF 6 Bachelor of Information Technology in Web Design and Development at NQF 7                                              | 171                                   | 21               | 37                                           |
| Biomass Plant Technicians                   | Fossil Power Plant Operations NQF 4                                                                                                                                                                                                     |                                       |                  | 49                                           |
| Wind Turbine Power Plant Process Controller |                                                                                                                                                                                                                                         |                                       |                  | 27                                           |
| Computer Network Technician                 | Diploma in Computer Bachelor of Computer Technology, Diploma in Computer Science, NQF Level 6 and 7                                                                                                                                     | 5772                                  | 589              | 733                                          |
| Outbound Contact Centre Consultant          | National Certificate: Contact Centre Support NQF 2; National Certificate: Contact Centre and Business Process Support NQF 3                                                                                                             | 29                                    |                  | 240                                          |
| Contact Centre Real Time Advisor            | National Diploma Contact Centre Management, NQF 5                                                                                                                                                                                       |                                       |                  | 87                                           |
| Contact Centre Resource Planner             | National Diploma Contact Centre Management, NQF 5                                                                                                                                                                                       |                                       |                  | 72                                           |
| Contact Centre Forecast Analyst             | National Certificate: Contact Centre Operations, NQF 4                                                                                                                                                                                  |                                       |                  | 55                                           |
| Call or Contact Centre Agent                | Diploma Contact Centre Management, NQF Level 5                                                                                                                                                                                          |                                       |                  | 2030                                         |
| Commercial Digital Printer                  | No formal qualification required                                                                                                                                                                                                        |                                       |                  | 158                                          |
| Electrical Equipment Mechanic               | Electrical Equipment Mechanic recorded as Trade                                                                                                                                                                                         | 81                                    |                  | 252                                          |
| Leather Processing                          | National Certificate: CTFL Manufacturing Processes (NQF 2)                                                                                                                                                                              | 41                                    |                  | 116                                          |

| OFO Description  | Minimum Qualification            | Preliminary number of enrolled (2020) | Graduated (2019) | Number of individuals unemployed (June 2021) |
|------------------|----------------------------------|---------------------------------------|------------------|----------------------------------------------|
| Machine Operator |                                  |                                       |                  |                                              |
| Fishing Hand     | No formal qualification required |                                       |                  | 164                                          |

*Note: Because of the evolving nature of the ERRP, such occupations are subject to change or amendment given new developments along the country's road to economic recovery and reconstruction. This is to ensure that the skills strategy remains agile and adaptive.*

In addition to such qualifications that require amendment, it is also important to flag that the skills gaps discussed in Tables 3 and 4 also require this intervention. Where there are insufficient short courses or skills programmes to close said skills gaps, these courses require reworking and revising.

#### 6.5. 2 **Actions:**

- a) **PQM:** Universities and Colleges will review and or/expand their Programme Quality Mix (PQMs) in order to address occupational shortages identified in this strategy.
- b) **Qualifications development:** Universities will initiate the development of new qualifications that are necessary to address occupational shortages identified in this strategy. The DHET and QCTO will undertake a similar exercise together with TVET Colleges in this regard. The Council for Higher Education (CHE), QCTO and SAQA will support processes to expedite the development of new qualifications that are linked to this strategy.
- c) **Curriculum review:** Universities will review the curricula of applicable programmes in order to address skills gaps identified in this strategy. The DHET and QCTO will undertake a similar exercise.
- d) **Funding:** SETAs and the NSF will redirect funding towards universities and the South African Institute for Vocational and Continuing Education and Training (SAIVCET) project to support the development of new qualifications, the introduction of new programmes through expanded PQMs and the review of curricula.
- e) **Quality Assurance:** The QCTO and CHE, in consultation with SAQA, will allow some flexibility in the structure of programmes to facilitate greater responsiveness and agility in programme design for those occupations that have been identified as being in shortage in this strategy. It is proposed that about 20% of a programme structure should be flexible.
- f) **Partnerships:** Universities will partner with industry, professional bodies and other stakeholders to develop new qualifications or review PQMs and curricula. Similarly the DHET will establish sustainable structures and mechanisms to engage with industry and other stakeholders to review TVET College PQMs and curricula. Universities, TVET Colleges and the DHET will partner with leading international educational institutions to accelerate the development of curricula.
- g) **R & D:** The Department of Science and Innovation (DSI) will support R&D led industrial development that supports the ERRP and ensure that skills are available for such R&D by supporting PQM and curriculum review processes.

## 5.6 INTERVENTION SIX: Update the draft Critical Skills List and associated regulatory mechanisms

### 5.6.1 Overview

The purpose of this intervention is to update the draft *Critical Skills List* to take into account the effects of Covid-19 and to respond to occupational shortages associated with the ERRP. It also draws attention to the need to reduce the time taken to obtain work permits and improve regulatory frameworks and processes for issuing critical skills visas (as sited in the ERRP).

This intervention seeks to ensure that those sectors in the ERRP that require individuals who have knowledge and skills sets that are not available in South Africa and that are required immediately, will be able to access such skills internationally.

Employers who find it difficult to recruit staff for some occupations have “hard-to-fill vacancies” that can sometimes only be filled by persons from outside of South Africa. Quite often this phenomenon co-exists with high levels of unemployment in the country for the same occupations<sup>33</sup>. This is because, in some cases, graduates lack experience, lack specialist skills, or because the curricula related to their qualification does not adequately meet the needs of employers in their respective fields. In addition, some jobs have specific language requirements while others are associated only with a company’s software, equipment and work processes.

Employers point out that SAQA processes for the verification of foreign qualifications often cause delays and could result in compromising investments. These challenges are currently being reviewed as part of the Operation Vulindlela process, which notes that there is a need to improve the regulatory frameworks and processes for issuing visas for critical skills and to reduce the time taken to obtain such visas.

#### **Actions:**

- a) **Update CSL:** DHET will update the draft Critical Skills List to take into account the impact of Covid 19, the implications of the ERRP and stakeholder inputs to the draft CSL.
- b) **Update OFO:** The DHET will update the OFO to incorporate new and emerging occupations
- c) **Verification of foreign qualifications:** SAQA will fast track its processes to verify foreign qualifications that are linked to the Critical Skills List.
- d) **Skills Transference:** DEL will encourage employers to adopt knowledge and skills transference strategies where there is a reliance on immigrant workers.
- e) **Regulations:** DHA will review its processes and regulatory mechanisms regarding the issuing of the Critical Skills Visa, with a view to making them more efficient.
- f) **Coordination:** DHET will work actively with other government departments, the private sector professional bodies and the government’s Operations Vulindlela process to ensure that the Critical Skills List responds to the needs of the economy .

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<sup>33</sup> As evidenced from the Employment Services South Africa (ESSA) database

## 5.7 INTERVENTION SEVEN: Strengthen entrepreneurship development programmes

### 5.7.1 Overview

This intervention focuses on the need to provide skills required for entrepreneurship development in ways that enable entry level entrepreneurial activities (private and social) through to higher end enterprises that rely on innovative research and development.

This intervention focuses on skills required to grow income generating opportunities in local economies through the establishment of private as well as social enterprises. These initiatives will be supported by the Pathway Management Network (Intervention Eight) as well as services provided by the Department of Small Business Development as well as national efforts to improve public access to low-cost data. The National Skills Development Plan (NSDP)<sup>34</sup> recognises that entrepreneurship is less about obtaining formal occupational qualifications and more about applied, peer and mentored learning and support. It emphasises that bespoke support produces better entrepreneurs and more sustained businesses.

Current initiatives to support entrepreneurship development include:

**Mapping of youth services:** The DSI is mapping services available to young people, including those related to supporting emerging entrepreneurs.

**Technology Innovation Agency (TIA):** The DSI TIA programme supports universities to translate innovation into entrepreneurship.

**Presidential Youth Service:** The Presidential Youth Service programmes supports participants in public employment programmes to establish social enterprises to sustain the services undertaken.

**Entrepreneurship hubs:** TVET Colleges are establishing entrepreneurship hubs with assistance from the Small Enterprise Development Agency (SEDA).

**Entrepreneurship Development in Higher Education (EDHE):** The DHET has developed a comprehensive national approach towards supporting entrepreneurship through the EDHE Programme. This multi-faceted approach has been successful in identifying structures and mechanisms to advance entrepreneurship within and across universities. Identification of pockets of excellence is continuously followed by the sharing of best practice within the sector, both through regular events (e.g. the annual EDHE Lekgotla), and through regular engagement of a network of focused communities of practice. Most universities have at least one hub (with different names in different institutions) positioned to support entrepreneurship, e.g. centres for entrepreneurship, incubators/accelerators, innovation offices/entities.

### 5.7.2 Actions:

a) **Presidential Youth Service Programme:** DHET to support Community Education and Training Colleges to support Presidential Youth Service programme participants to transition into social entrepreneurship initiatives.

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<sup>34</sup> DHET (2019). Promulgation of the National Skills Development Plan. Government Gazette 42290. Pretoria.

b) **TVET College Entrepreneurship Hubs:** The DHET will develop a workable and sustainable model for the establishment of Entrepreneurship Hubs at TVET Colleges and scale these up to more colleges.

c) **University EDHE Programme:** DHET will continue to strengthen its EDHE programme.

d) **Funding:** SETAs, the NSF, relevant government departments and state entities will fund efforts to support entrepreneurship development programmes and projects. The Department of Small Business Development will fund the development of technology stations and living labs in TVET Colleges.

e) **Coordination:** DHET will work closely with the Small Enterprise Development Agency (SEDA) and DSI to enable entrepreneurship development in PSET institutions.

➤ **DSI:** The DSI will:

- strengthen existing and grow new initiatives to support entrepreneurship and innovation through its mLabs, living labs, agri innovation hubs, dLabs, enviropreneurs, grassroots innovators, and other programmes. This includes the development of accredited and quality training entrepreneurship development programmes.
- continue its project to map the availability of entrepreneurship development services through the Pathway Management Network. DSI will ensure that entrepreneurship development services offered by TVET Colleges, Universities and SETAs are included in the project.
- will continue to support Universities to translate innovations to marketable products through its TIA and other programmes.
- will initiate processes to establish technology stations and living labs at TVET Colleges to support entrepreneurship development

## 5.8 INTERVENTION EIGHT: Embed skills planning into economic planning processes and vice versa

### 5.8.1 Overview

This intervention aims to ensure that skills planning is embedded in economic planning processes; and conversely, for economic planning to be embedded in skills planning processes. The idea is for economic planning to incorporate issues pertaining to skills supply and demand, and for skills planning to be demand-led and responsive to the needs of the economy. In this way, skills are part of a package of industrial interventions, together with incentives, trade agreements, and other interventions, instead of a separate or parallel 'add on'.

Currently, there are several initiatives to support alignment between economic and skills planning processes. These are as follows:

**Master Plans:** The government is currently developing Master Plans to build the economy in priority sectors. Some of these Master Plans, such as the Digital, Automotive and Steel plans include helpful information about skills needs. However, many others are yet to factor in the implications of skills supply and demand in their plans. The DHET is working together with those involved in the development of Master Plans to ensure coherence in approaches to identifying skills needs and develop interventions to respond to these.

**Sector Skills Planning:** Over the past 2 decades, SETAs have been developing Sector Skills Plans that identify occupational shortages and skills gaps. These plans are used by SETAs to direct resources towards where skills are needed the most.

**Macro-demand (Occupations in High Demand):** Over the past 6 years, the DHET has gazetted lists of Occupations in High Demand (OIHD) intended to be used by public and private education and training institutions and skills development providers to inform the kinds of programmes they offer. The idea is to improve employability by ensuring that E & T programmes are responsive to the needs of the economy. The list of OIHD is a signalling tool to also inform career development services and guide young people to occupations that are in high demand. In addition, the list of OIHD is being used to prioritise the use of resources and qualifications development.

**Digital/ICT Demand:** The Business Process Enabling South Africa (BPESA) and Harambee have mapped digital and ICT roles and demand through a research process to identify digital occupations that are in high demand and skills gaps in the digital sector. In doing so, they examined the nature and extent of offshoring of digital demand in SA, the roles and responsibilities of high demand digital occupations and the nature and level of competencies required for occupations that are in high demand in the digital sector.

**IRM Initiative:** The DHET, together with key players in the automotive industry (NAACAM) and the IYF have undertaken a range of initiatives to determine real-time demand for Installation, Repair and Maintenance (IRM) skills, and intervene to respond to such skills needs. The National Business Initiative (NBI), Harambee, IOPSA, the Presidency and the Gauteng Government are also involved in this process.

### 5.8.2 Actions:

**a) Embed Skills in Economic Planning Processes:** The DHET and relevant SETAs will participate in economic planning initiatives such as the Master Plan development processes, industry-led planning processes, public sector human resource planning processes, the circular economy initiative and the Public-Private Growth Initiative to ensure that skills planning is embedded in these economic planning processes. The DHET and SETA representatives in these processes will ensure that skills remain on the agenda and that there is a collective and on-going and iterative process of determining which skills are required, the reasons for skills shortages and the type of skills development interventions that will meet this demand.

- b) *Embed economic planning into skills planning:*** The DHET and SETAs will analyse economic plans and strategies in their processes to identify current and future skills needs.
- c) *Skills Audit:*** The DHET will undertake a comprehensive **skills audit** to ascertain the availability of skills in South Africa in relation to skills needs. This work will be done in collaboration with industry and other relevant government departments.

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## 5.9 INTERVENTION NINE: National Pathway Management Network

### 5.9.1 Overview

This intervention focuses on promoting the widespread adoption and strengthening of government's national pathway management network (PMN). The PMN was announced by the President in the State of the Nation Address (SONA) in 2020. The central objective of the PMN is to support individuals to transition from 'learning to earning'.

The PMN is part of the Presidential Youth Employment Intervention and is being taken forward by DEL together with a range of other partners. The DSI, working with the Southern African Labour and Development Research Unit (SALDRU) at UCT and other partners, is playing a key role in the mapping of services available to young people.. More specifically, the PMN seeks to:

- Aggregate job and work opportunities that are currently driven by, among others, government's mass employment programme and private sector jobs.
- Link youth to opportunities and support interventions by connecting people to job opportunities and youth service programmes through a network of digital, telephone and other platforms.
- Drive System change that addresses barriers to employment by identifying and advocating policy and regulatory changes that address barriers to employment. These include focus areas such as zero-rating of data, shifting qualification requirements and coordinating employment incentive and subsidy schemes.

The PMN draws on a range of platforms to achieve its objectives. Such platforms include: the Mobi-Site; SA Youth Support Line; socialmedia; inbound and outbound toll-free support lines; ESSA etc. The emphasis is that regardless of where individuals access the network (through NYDA centres, DEL offices (PES) or on the SA Youth mobi-site) they will have visibility across the network and access to a myriad of available job opportunities and support services.

### 5.9.2 Actions:

- a) **Utilising PMN:** DHET will work with DEL and the Presidency Project Management Office on ways to ensure that PSET institutions are aware of the national Pathway Management Network (PMN) and will encourage their students to join the PMN when they enrol. The idea is for students to build their profile and visibility and access WBL opportunities or to transition into the labour market.
- b) **Mapping of services:** The DSI will support the PMN to map all youth services offered by government and its social partners.
- c) **Zero-rating of data:** DHET will work with the Department of Telecommunications and Postal Services to expand and sustain efforts to ensure that PSET institutions and not for profit applications that support work seekers, are zero-rated.

## **5.10 INTERVENTION TEN: Strengthen the post-school education and training system**

### **5.10.1 Overview**

This intervention focuses on ensuring that the schooling and PSET systems are strengthened to meet medium and long-term demands of the economy. The DHET's draft National Plan for PSET (NPPSET) provides clear direction on the kinds of interventions required to address structural weaknesses in the PSET system. Among these are the need for a review of the NQF system, the need for an improved interface between E & T institutions and employers and the need for greater responsiveness of the PSET system towards the world of work. This intervention therefore places emphasis on key dimensions of the draft NPPSET that are applicable to the sustainable implementation of the ERRP.

There is general acknowledgement that the current quality assurance system for education and training in South Africa needs to be loosened and be made more efficient to facilitate the provisioning of E & T programmes (see also Interventions 2 and 5). Universities South Africa (USAf) concurs that there has to be a more effective and efficient quality management and accreditation system put in place. It proposes that the provisioning of short skills programmes in particular, require new forms of credentialing and consideration of what some describe as 'block chain credentialing'.

Many stakeholders have proposed the need for the adoption of MOOCs as a means to provide flexible, learner-centred and agile education and training programmes on a large scale. However, the CHE has advanced a precautionary note, indicating that MOOCs present quality and other regulatory concerns since they do not have any "admission requirements" and that they are not formally quality-assured and/or accredited. There is therefore a need to interrogate the matter of MOOCs, especially in the context of the internationalisation of education and training.

The COVID crisis has revealed that many PSET institutions and skills development providers were unable to provide quality E & T to students, although some did perform remarkably well. There is therefore recognition for the need to build 'surge capacity' in E & T institutions, especially for non-contact learning. Surge capacity refers to excess institutional strength that can be drawn on to shift direction in moments of difficulty. Institutions that have the capacity to adapt their programme offerings as well as the mode in which these are offered need enormous capacity to be able to respond in an agile manner to short term labour market demands. Such institutional capacity cannot be built up the instant the crisis emerges. One of the constraining factors to build such surge capacity is the current funding model, which is, based rather tightly on learner enrolments. Funding to E & T institutions should therefore include an orientation towards the need to build surge capacity during crises.

The Business sector has drawn attention to the dependencies of PSET on Early Childhood Development (ECD) & Basic Education, emphasising that "it should therefore be cognisant of the constraints and areas of weakness in these sectors". It is generally well-known that while access to ECD and Basic Education has grown enormously over the past two decades, and while, according to UNESCO, upper secondary completion rates in SA are similar to that of middle-income countries, the quality of schooling and ECD quality remains much to be desired. . It is also important to note that 24% of school learners who complete Grade 11 drop out before going on to Grade 12, while about 15% of learners who complete Grade 10 drop out before proceeding

to Grade 11<sup>35</sup>. It is very likely that the majority of those learners who drop out of school make their way to the labour market, largely as job seekers. The need for a coordinated approach across the E & T system is therefore essential to ensure that young people have skills that can assist them to navigate the labour market.

The provision of technical vocational education and training (TVET) needs to be conceptualized within the framework of broader economic and labour market contexts. Decisions about industrial transformation and skills are inter-related and vocational skills development cannot be seen as exogenous to a wider outlook on policy for industrial development and growth. Equally importantly, partnerships between TVET colleges and its public and private partners must not be designed around project formats, which have a defined and finite life span. Such engagements must be built on multi-faceted areas of mutual benefit that will endure over time and respond to skills challenges faced on both sides. In this way there would be a tighter compact to do what is needed or change what needs to change through common understanding and consensus. Central to TVET provisioning is the need for effective communities of trust that involve all stakeholders with an interest in particular job clusters, 'occupational families', or 'vocational streams'. As a minimum, such communities of trust should include employers, worker representatives, professional/vocational association, educators, and relevant government officials. Equally important is building expert capacity in government institutions, with long-term institutional capacity to engage with different vocational and occupational groups.

#### 5.10.2 **Actions:**

- a) **Quality Assurance System:** The DHET, in consultation with SAQA, the 3 Quality Councils, professional bodies, employer associations, and other stakeholders, will review the current E & T quality assurance system (including those regulations governing professional bodies) with a view to improving its effectiveness and efficiency and adopt new approaches to credentialing (such as block chain and micro credentialing), especially for short courses.
- b) **MOOCs:** The DHET, in consultation with SAQA, the 3 Quality Councils, professional bodies, employer bodies and other stakeholders will investigate how MOOCs (both national and international) can be used in a manner that does not compromise the quality of education and training.
- c) **Accreditation:** QCTO and CHE, in consultation with SAQA will relax requirements for curriculum compliance on qualifications identified as immediate priorities. It is proposed that 20% of the programme must be flexible so that institutions can be responsive to short term requirements of employers and sectors.
- d) **Funding:** The DHET will adopt funding mechanisms to provide surge funding to E & T institutions in order for them to respond effectively to crises and develop a sustainable funding model for the PSET system. The DHET will revisit its funding and institutional support mechanisms with a focus on building medium to long-term institutional capacity and ensuring optimal use of existing resources.

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<sup>35</sup> <https://businesstech.co.za> "This is the school dropout rate".

- e) **Basic Education:** The DHET will request the Human Resources Development Council to facilitate engagement on the role of the DBE in the implementation of this strategy, including ECD.
- f) **Partnerships:** The DHET, together with SETAs, will support TVET colleges to become more **embedded** in industrial, social and especially occupational developments.

## 5. IMPLEMENTATION

The success of this strategy is dependent upon a well-developed implementation plan that can actively direct the strategy's execution and monitoring. Without an implementation plan, the strategy will remain a guide and its implementation will rest on the goodwill and or interests of key players. The ERRP SS will therefore be accompanied by an implementation plan that will detail who will do what, when, how and with what funds. The implementation plan will be developed by the DHET (which is the lead organisation in respect of this strategy) in consultation with other roleplayers. The plan will also create a mechanism for accountability, which will compel key actors to provide progress reports to a Technical Implementation Forum. Monitoring and reporting progress on the Implementation Plan will be built into this accountability mechanism. Details of how monitoring will occur and the structures that will be established and or involved in ensuring accountability will be included in the Implementation Plan. It is certain however, that progress reports on the implementation of the ERRP SS will be part of overall ERRP progress reports that will be available to social partners. As indicated above, this ERRP skills strategy will evolve as the ERRP itself evolves in order to ensure that skills development initiatives respond to the needs of the economy.

As stated above, all interventions and actions committed to in this strategy are expected to be built into existing planning tools and mechanisms in order to avoid unnecessary duplication of reporting and to prevent the over-burdening of reporting in the system.

It is also important to note that the implementation of the ERRP SS is not dependent on the finalisation of the implementation plan. Actions identified in the ERRP SS are expected to be effected as soon as is possible.

Finally, it is quite possible that the ERRP itself may evolve as national and international socio-economic conditions change. Undoubtedly therefore, and particularly in light of it being demand-led, the ERRP SS would also have to change in line with the ERRP itself.

## Appendix 2: List of occupational shortages, with reasons and interventions

| OFO Code    | OFO Description                  | Main reason(s) for shortage                           | Most appropriate intervention(s) based on ERRP intervention definitions |
|-------------|----------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------|
| 2019-121202 | Business Training Manager        |                                                       |                                                                         |
| 2019-122301 | Research and Development Manager | Insufficient number of graduates                      | Enrolment planning                                                      |
| 2019-131101 | Agricultural Farm Manager        | Lack of required technical skill                      | Access to targeted skills programmes                                    |
| 2019-132102 | Manufacturing Operations Manager | Lack of relevant experience                           | Access to workplace experience (WIL, internships, candidacies)          |
| 2019-132107 | Quality Manager                  | Lack of relevant experience                           | Access to workplace experience (WIL, internships, candidacies)          |
| 2019-132301 | Construction Project Manager     | Lack of relevant experience                           | Access to workplace experience (WIL, internships, candidacies)          |
| 2019-133102 | ICT Project Manager              | Lack of relevant experience                           | Access to workplace experience (WIL, internships, candidacies)          |
| 2019-143905 | Call or Contact Centre Manager   | Equity considerations; Sub-optimal curriculum content | Enrolment planning and curriculum development                           |
| 2019-211201 | Meteorologist                    | Lack of required technical skill                      | Access to targeted skills programmes                                    |
| 2019-213105 | Biotechnologist                  | Lack of required technical skill                      | Access to targeted skills programmes                                    |
| 2019-213108 | Microbiologist                   | Lack of required technical skill                      | Access to targeted skills programmes                                    |
| 2019-213109 | Zoologist                        | Lack of required technical skill                      | Access to targeted skills programmes                                    |
| 2019-213201 | Agriculture Consultant           | Lack of required technical skill                      | Access to targeted skills programmes                                    |
| 2019-213202 | Agricultural Scientist           | Lack of relevant experience                           | Access to workplace experience (WIL, internships, candidacies)          |
| 2019-213205 | Food and Beverage Scientist      | Lack of required technical skill                      | Access to targeted skills programmes                                    |
| 2019-213302 | Environmental Scientist          | Lack of relevant experience                           | Access to workplace experience (WIL, internships, candidacies)          |
| 2019-213304 | Earth and Soil Scientist         | Lack of required technical skill                      | Access to targeted skills programmes                                    |

|                 |                                                                                                     |                                                                     |                                                                                                         |
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| 2019-21410<br>4 | Production Engineering Technologist (specialising as Leather and Footwear Production Technologists) | Lack of required technical skill                                    | Access to targeted skills programmes                                                                    |
| 2019-21420<br>1 | Civil Engineer                                                                                      | Lack of relevant experience                                         | Access to workplace experience (WIL, internships, candidacies)                                          |
| 2019-21420<br>2 | Civil Engineering Technologist                                                                      | Lack of required technical skill                                    | Access to targeted skills programmes                                                                    |
| 2019-21440<br>1 | Mechanical Engineer                                                                                 | Lack of required technical skill                                    | Access to targeted skills programmes                                                                    |
| 2019-21460<br>5 | Metallurgist                                                                                        | Lack of required technical skill                                    | Access to targeted skills programmes                                                                    |
| 2019-21490<br>4 | Quantity Surveyor                                                                                   | Lack of relevant experience                                         | Access to workplace experience (WIL, internships, candidacies)                                          |
| 2019-21510<br>1 | Electrical Engineer                                                                                 | Lack of required technical skill;<br>Lack of relevant experience    | Access to targeted skills programmes and access to workplace experience (WIL, internships, candidacies) |
| 2019-21510<br>3 | Energy Engineer                                                                                     | Insufficient number of graduates                                    | Enrolment planning                                                                                      |
| 2019-21510<br>4 | Energy Engineering Technologist                                                                     | Sub-optimal curriculum content                                      | Curriculum development                                                                                  |
| 2019-21610<br>1 | Architect                                                                                           | Lack of required technical skill                                    | Access to targeted skills programmes                                                                    |
| 2019-21630<br>2 | Industrial Designer                                                                                 | Lack of required technical skill                                    | Access to targeted skills programmes                                                                    |
| 2019-21630<br>4 | Footwear Designer                                                                                   | Lack of required technical skill                                    | Access to targeted skills programmes                                                                    |
| 2019-21660<br>3 | Multimedia Designer                                                                                 |                                                                     |                                                                                                         |
| 2019-22630<br>2 | Safety, Health, Environment and Quality (SHE&Q) Practitioner                                        | Lack of relevant experience                                         | Access to workplace experience (WIL, internships, candidacies)                                          |
| 2019-23420<br>1 | Early Childhood Development Practitioner                                                            | Insufficient number of graduates                                    | Enrolment planning                                                                                      |
| 2019-25110<br>1 | ICT Systems Analyst                                                                                 | Lack of required technical skill;<br>Sub-optimal curriculum content | Access to targeted skills programmes and curriculum development                                         |
| 2019-25110<br>2 | Data Scientist                                                                                      | Insufficient number of graduates                                    | Enrolment planning                                                                                      |
| 2019-25120<br>1 | Software Developer*                                                                                 | Lack of required technical skill                                    | Access to targeted skills programmes                                                                    |

|                 |                                                    |                                                                                                                                                                 |                                                                                                               |
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| 2019-25120<br>2 | Programmer Analyst                                 | Lack of relevant experience;<br>Insufficient number of graduates                                                                                                | Access to workplace experience (WIL, internships, candidacies) and enrolment planning                         |
| 2019-25120<br>3 | Developer Programmer                               | Sub-optimal curriculum content                                                                                                                                  | Curriculum development                                                                                        |
| 2019-25130<br>2 | Web Developer                                      | Equity considerations;<br>Sub-optimal curriculum content                                                                                                        | Enrolment planning and curriculum development                                                                 |
| 2019-25230<br>1 | Computer Network and Systems Engineer              | Insufficient number of graduates                                                                                                                                | Enrolment planning                                                                                            |
| 2019-25290<br>1 | ICT Security Specialist                            | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-31120<br>1 | Civil Engineering Technician                       | Lack of relevant experience                                                                                                                                     | Access to workplace experience (WIL, internships, candidacies)                                                |
| 2019-31130<br>1 | Electrical Engineering Technician                  | Lack of relevant experience                                                                                                                                     | Access to workplace experience (WIL, internships, candidacies)                                                |
| 2019-31140<br>1 | Electronic Engineering Technician                  | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-31190<br>4 | Manufacturing Technician                           | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-31220<br>1 | Production / Operations Supervisor (Manufacturing) | Lack of relevant experience                                                                                                                                     | Access to workplace experience (WIL, internships, candidacies)                                                |
| 2019-31220<br>2 | Maintenance Planner                                | Lack of relevant experience                                                                                                                                     | Access to workplace experience (WIL, internships, candidacies)                                                |
| 2019-31230<br>1 | Building Associate                                 | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-31310<br>2 | Biomass Plant Technicians                          | Sub-optimal curriculum content                                                                                                                                  | Curriculum development                                                                                        |
| 2019-31310<br>5 | Wind Turbine Power Plant Process Controller        | Lack of required technical skill;<br>Equity considerations;<br>Lack of relevant experience;<br>Insufficient number of graduates; Sub-optimal curriculum content | Access to workplace experience (WIL, internships, candidacies), enrolment planning and curriculum development |
| 2019-31310<br>9 | Solar Photovoltaic Service Technician              | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |

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| 2019-31390<br>1 | Integrated Manufacturing Line Process Control Technician | Lack of required technical skill                                   | Access to targeted skills programmes                           |
| 2019-31390<br>7 | Food and Beverage Manufacturing Process Controller       | Insufficient number of graduates                                   | Enrolment planning                                             |
| 2019-31420<br>1 | Agricultural Technician                                  | Lack of required technical skill                                   | Access to targeted skills programmes                           |
| 2019-32570<br>5 | Safety Inspector/Medical Equipment Inspector             | Lack of required technical skill                                   | Access to targeted skills programmes                           |
| 2019-33230<br>2 | Purchasing Officer                                       | Lack of required technical skill                                   | Access to targeted skills programmes                           |
| 2019-35120<br>1 | ICT Communications Assistant                             | Lack of relevant experience                                        | Access to workplace experience (WIL, internships, candidacies) |
| 2019-35130<br>1 | Computer Network Technician                              | Sub-optimal curriculum content                                     | Curriculum development                                         |
| 2019-42220<br>1 | Inbound Contact Centre Consultant                        | Insufficient number of graduates                                   | Enrolment planning                                             |
| 2019-42220<br>2 | Outbound Contact Centre Consultant                       | Sub-optimal curriculum content                                     | Curriculum development                                         |
| 2019-42220<br>3 | Contact Centre Real Time Advisor                         | Insufficient number of graduates; Sub-optimal curriculum content   | Enrolment planning and curriculum development                  |
| 2019-42220<br>4 | Contact Centre Resource Planner                          | Sub-optimal curriculum content                                     | Curriculum development                                         |
| 2019-42220<br>5 | Contact Centre Forecast Analyst                          | Sub-optimal curriculum content                                     | Curriculum development                                         |
| 2019-42220<br>6 | Call or Contact Centre Agent                             | Sub-optimal curriculum content                                     | Curriculum development                                         |
| 2019-61120<br>2 | Horticultural Farmer                                     | Insufficient number of graduates                                   | Enrolment planning                                             |
| 2019-64150<br>2 | Carpenter                                                | Lack of required technical skill                                   | Access to targeted skills programmes                           |
| 2019-64260<br>1 | Plumber                                                  | Equity considerations                                              | Enrolment planning                                             |
| 2019-64270<br>1 | Air-conditioning and Refrigeration Mechanic              | Lack of required technical skill                                   | Access to targeted skills programmes                           |
| 2019-64270<br>2 | Refrigeration Mechanic                                   | Lack of required technical skill; Insufficient number of graduates | Access to targeted skills programmes and enrolment planning    |

|             |                                                   |                                                                  |                                                                                                         |
|-------------|---------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| 2019-651403 | Steel Fixer                                       | Lack of required technical skill;<br>Lack of relevant experience | Access to targeted skills programmes and access to workplace experience (WIL, internships, candidacies) |
| 2019-652201 | Toolmaker                                         | Lack of relevant experience                                      | Access to workplace experience (WIL, internships, candidacies)                                          |
| 2019-652301 | Metal Machinist                                   | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-652302 | Fitter and Turner                                 | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-653302 | Mechanical Equipment Repairer                     | Insufficient number of graduates                                 | Enrolment planning                                                                                      |
| 2019-662216 | Commercial Digital Printer                        | Sub-optimal curriculum content                                   | Curriculum development                                                                                  |
| 2019-671101 | Electrician                                       | Insufficient number of graduates                                 | Enrolment planning                                                                                      |
| 2019-671204 | Lift Mechanic                                     | Lack of relevant experience                                      | Access to workplace experience (WIL, internships, candidacies)                                          |
| 2019-671206 | Electrical Equipment Mechanic                     | Sub-optimal curriculum content                                   | Curriculum development                                                                                  |
| 2019-672105 | Instrument Mechanician/Medical Equipment Repairer | Equity considerations                                            | Enrolment planning                                                                                      |
| 2019-682201 | Cabinet Maker                                     | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-682301 | Furniture Finisher                                | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-682303 | Wood Machinist                                    | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-683202 | Apparel and related pattern maker                 | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-683401 | Upholsterer                                       | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-684101 | Diver                                             | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-684301 | Crop Produce Analyst                              | Insufficient number of graduates                                 | Enrolment planning                                                                                      |
| 2019-684305 | Quality Controller (Manufacturing)                | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |
| 2019-712101 | Metal Processing Plant Operator                   | Lack of required technical skill                                 | Access to targeted skills programmes                                                                    |

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| 2019-71420<br>2 | Plastic Compounding and Reclamation Machine Operator | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-71550<br>1 | Leather Processing Machine Operator                  | Lack of required technical skill;<br>Equity considerations;<br>Lack of relevant experience;<br>Insufficient number of graduates; Sub-optimal curriculum content | Access to workplace experience (WIL, internships, candidacies), enrolment planning and curriculum development |
| 2019-71560<br>1 | Footwear Cutting Production Machine Operator         | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-71560<br>2 | Footwear Closing Production Machine Operator         | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-71560<br>3 | Footwear Bottom Stock Production Machine Operator    | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-71560<br>4 | Footwear Lasting Production Machine Operator         | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-71560<br>5 | Footwear Finishing Production Machine Operator       | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-71611<br>2 | Seafood Processing Machine Operator                  | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-71710<br>2 | Paper and Pulp Mill Operator                         | Insufficient number of graduates                                                                                                                                | Enrolment planning                                                                                            |
| 2019-72190<br>1 | Product Assembler                                    | Lack of required technical skill;<br>Lack of relevant experience                                                                                                | Access to targeted skills programmes and access to workplace experience (WIL, internships, candidacies)       |
| 2019-73321<br>1 | Remotely Operated Vehicle (ROV) Pilot                |                                                                                                                                                                 |                                                                                                               |
| 2019-73440<br>2 | Forklift Driver                                      | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-82160<br>1 | Fishing Hand                                         | Sub-optimal curriculum content                                                                                                                                  | Curriculum development                                                                                        |
| 2019-83290<br>3 | Timber and Wood Process Worker                       | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-83290<br>4 | Food and Beverage Factory Worker                     | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |
| 2019-83330<br>3 | Waterside Worker                                     | Lack of required technical skill                                                                                                                                | Access to targeted skills programmes                                                                          |

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