Situational analysis of skills supply and demand in South Africa

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Labour Market Intelligence

- In 2019, DHET initiated Phase 2 of the Labour Market Intelligence (LMI) research programme:
  - A major, multi-year, government wide research programme
  - Make the PSET system (skills supply) more responsive to the needs of the economy (skills demand)
  - Foster a demand driven approach to education & training
- LMIP undertaken to:
  - align skills planning with economic planning
  - identify skills needs across the economy
  - ensure that skills not a constraint on economic growth
  - promote the use of labour market intelligence for skills provisioning

Understanding skills supply and demand in South Africa

- Skills Supply - Skills possessed by the population and/or Labour Force
- Skills demand - Skills demanded by employers
- Skills Imbalances - Gap between what employers require and what is available in the labour force

How do we measure skills supply?

- Directly - by actually assessing/testing people
  - Measures ability and cognitive skills
  - Direct measures are very expensive & not sustainable
- Indirectly - using proxies such as peoples' qualifications or highest level of education attainment

How do we measure skills demand?

- Directly - analysing administrative or Big Data
  - Data on job vacancies
- Indirectly - using proxies measures such as employment by educational attainment, occupation and sector

Level of education in the population

The number and share of persons in the population aged 25–64 years by highest level of education attainment, 2010 and 2020

Highest level of education attainment	2010		2020	
	Number	%	Number	%
No schooling	1 209 488	5.2	629 996	2.3
Less than primary completed	2 993 748	13.0	2 040 362	7.4
Primary completed	1 410 235	6.1	1 155 587	4.2
Secondary not completed	8 605 548	**37.3**	11 282 589	**41.2**
Secondary completed	5 626 169	**24.4**	8 341 243	**30.4**
Certificate	545 526	2.4	667 592	2.4
Diploma	1 274 392	5.5	1 411 568	5.2
Degree	1 112 320	**4.8**	1 654 585	**6.0**
Other	304 835	1.3	223 884	0.8
Total	23 082 260	100.0	27 407 406	100.0

Unemployed by education level

Number and share of unemployed persons in the population aged 25–64 years by highest level, 2010, 2019, and 2020

Highest level of education attainment	Expanded Unemployed					
	2010		2019		2020	
	Number	%	Number	%	Number	%
No schooling	149 416	3.2	118 716	1.7	89 474	1.3
Less than primary schooling	555 655	11.7	520 631	7.3	437 824	6.2
Primary schooling	303 172	6.4	304 746	4.3	303 421	4.3
Some secondary schooling	2 258 026	**47.7**	3 616 028	50.6	3 444 947	**48.9**
Secondary (Grade 12 or equivalent) schooling	1 175 342	**24.8**	2 059 199	28.8	2 200 575	**31.3**
Certificate	100 858	2.1	158 181	2.2	154 394	2.2
Diploma	105 719	2.2	196 664	2.7	225 440	3.2
Degree	41 734	**0.9**	129 656	1.8	135 589	**1.9**
Other	42 774	0.9	48 978	0.7	46 359	0.7
Total	**4 732 696**	**100.0**	**7 152 800**	**100.0**	**7 038 023**	**100.0**

Adult Illiteracy in South Africa

Persons aged 20 & older who have not completed grade 7 & above

Gender	2009			2019		
	Number	% Share	Illiteracy rate	Number	% Share	Illiteracy rate
Male	2 480 923	43.2%	17.4%	2 046 127	46.3%	11.6%
Female	3 265 779	56.8%	20.9%	2 375 457	53.7%	12.5%
Total	**5 746 702**	**100.0%**	**19.2%**	**4 421 584**	**100.0%**	**12.1%**

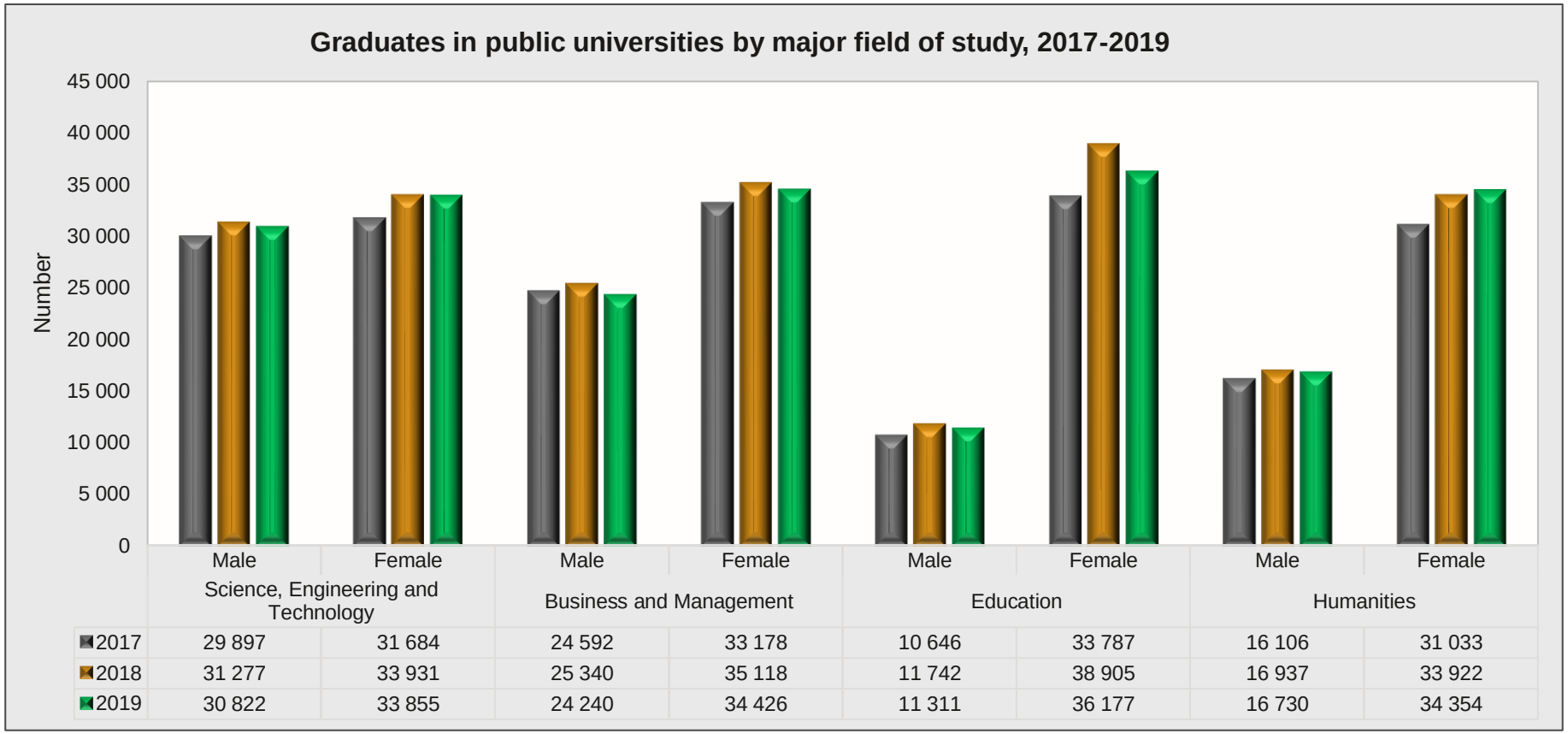
Skills Supply Pipeline

Number and percentage of learners who wrote and achieved Grade 12

Year	Public Schools				Independent Schools			
	Wrote	Achieved	Not Achieved	% achieved (pass rate)	Wrote	Achieved	Not Achieved	% achieved (pass rate)
	Number				Number			
2017	512 332	382 483	129 849	**74.7**	22 110	18 930	3 180	**85.6**
2018	490 415	381 499	108 916	**77.8**	21 796	18 969	2 827	**87.0**
2019	482 877	390 940	91 937	**81.0**	21 087	18 759	2 328	**89.0**
2020	556 747	**421 363**	135 384	**75.7**	21 515	**19 200**	2 315	**89.2**

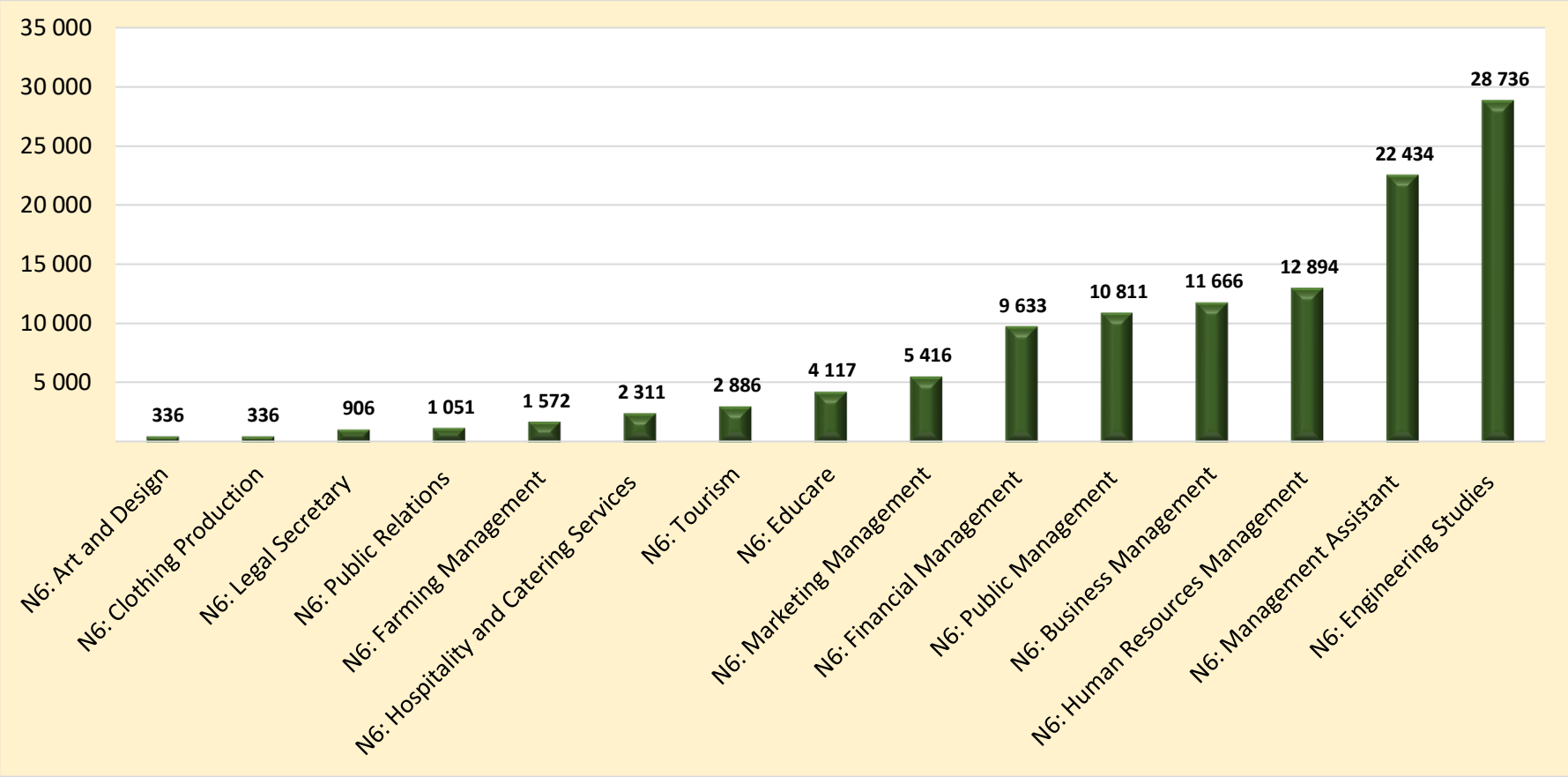
- Of the 503 964 students who wrote matric in 2019, 209 701 (preliminary) enrolled at public universities in 2020
- Of the 512 211 students who wrote matric in 2018, 78 827 enrolled at TVET Colleges in 2019
- Of these students, close to 26 000 did not complete their matric
- This means that close to two thirds of all new entrants to TVET Colleges in 2019 had already completed matric
- Most of the students who completed matric enrolled for NATED programmes, while the majority of those who did not complete matric enrolled for the NCV

Graduate outputs in the PSET system (1)



	Science, Engineering and Technology		Business and Management		Education		Humanities	
	Male	Female	Male	Female	Male	Female	Male	Female
2017	29 897	31 684	24 592	33 178	10 646	33 787	16 106	31 033
2018	31 277	33 931	25 340	35 118	11 742	38 905	16 937	33 922
2019	30 822	33 855	24 240	34 426	11 311	36 177	16 730	34 354

Graduate outputs in the PSET system (2)



Efficiency of the PSET system (1)

Throughput rates for first-time-entering students cohort in three-year degree programmes

National total: Contact and distance								
Intake year	Graduates (%)							
Year 1	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
2009	18.8	35.1	46.0	52.0	55.7	58.1	59.7	60.9
2010	21.5	39.0	50.3	55.8	59.2	61.3	62.7	
2011	20.9	38.0	48.9	54.4	57.5	59.7		
2012	22.9	40.5	51.7	57.2	60.5			
2013	26.6	46.2	57.6	63.4				
2014	28.1	47.8	59.6					
2015	28.6	49.1						
2016	29.9							

Data not available

Efficiency of the PSET system (2)

TVET NC(V) throughput rate by gender, 2016–2018

Gender	Number of students enrolled NC(V) Level 2 in 2016	Number of students who completed NC(V) Level 4 in 2018	Throughput rate (%)
Male	35 046	2 226	6.4
Female	53 725	5 909	11.0
Overall	**88 771**	**8 135**	**9.2**

Profile of occupations of the workforce

Occupation	2010	2019	2020
	Thousand		
Manager	1 099	1 467	1 342
Professional	764	914	998
Technician	1 534	1 420	1 310
Clerk	1 517	1 704	1 562
Sales and services	1 974	2 717	2 483
Skilled agriculture	92	61	71
Craft and related trade	1 682	1 937	1 674
Plant and machine operator	1 195	1 371	1 269
Elementary	2 971	3 744	3 444
Domestic worker	959	1 012	877
Other		2	32
Total	**13 788**	**16 350**	**15 061**

Employment composition by skills level

Type	Number of skill level by occupation		Change	% Change	% of Total		% Change
	2010	2020			2010	2020	
	R'000						
Skilled	3 397	3 650	253	7.4%	24.6%	24.3%	-0.4%
Semi-skilled	6 461	7 059	598	9.3%	46.9%	47.0%	0.1%
low-skilled	3 930	4 321	391	9.9%	28.5%	28.7%	0.2%
Total	**13 788**	**15 030**	**1 242**	**9.0%**	**100.0%**	**100.0%**	**0.0%**

How does HLEA affect wages

Median wages by level of education, 2019

	No matric	Matric	Certificate	Diploma	Degree	Total
Black African	3 021	4 000	5 164	7 023	18 488	3 563
Coloured	3 491	4 500	4 923	5 681	18 591	3 683
Indian/Asian	4 648	5 900	20 033	14 460	19 624	7 453
White	12 216	9 668	19 337	15 107	20 142	13 132
All males	3 580	4 648	10 833	8 728	20 000	4 131
All females	2 545	3 850	4 886	7 050	18 591	3 466
Total	**3 200**	**4 190**	**7 500**	**8 000**	**19 135**	**3 822**

Occupations in High Demand (1)

- The DHET has gazetted the 2020 national lists of Occupation in High Demand (OIHD)
- Occupations in high demand refer to occupations that:
  - show relatively high employment growth based on past, present and future trends and that are currently in shortage
- Encompasses the idea of historical, current and anticipated occupational growth trends
- New and emerging occupations
- Occupational shortages
- Occupations associated with government strategic priorities
- The List provides useful insights into the skills needs of the economy and society and:
  - Signals the need for the development of new qualifications, especially to respond to new and emerging occupations.
  - Informs career guidance for learners and students to ensure that they enrol for programmes and select fields of study that respond to the occupations in high demand

Occupations in High Demand (2)

- List provides the name of the occupation, the OFO code of the occupation & the minimum qualification usually associated with an occupation
- The order of occupations listed has no relation to priority, but rather follows the ordering of the OFO framework
- Includes occupations requiring NQF level 4 and above
- Includes occupations that appear in the Department of Labour's Employment Services South Africa (ESSA) work seekers database:
  - Geographical dynamics
  - Timing of data availability
  - Impact of Covid-19
- List not intended to signal shortages (i.e., this is not a scarce skills list)
- It is not intended to be used to inform the recruitment of critically skilled foreign nationals

Occupations in High Demand (3)

Artisans in Infrastructure/Construction sector in 2020 OIHD	Occupations in Manufacturing sector 2020
Carpenter and Joiner	Furniture Finisher
Carpenter	Tailor
Joiner	Textile Produce Mender and Embroiderer
Wall and floor tiler	Quality Controller (Manufacturing)
Metal Machinist	Textile, Clothing, Footwear and Leather Processing Machine Mechanic
Fitter and Turner	Concrete products machine operator
Automotive motor mechanic	Glass, clay, and stone manufacturing machine setter and minder
Industrial Machinery Mechanic	Plaster machine operator
Mechanical fitter	Cement production plant operator
Diesel Fitter	Plastics Manufacturing Machine Minder
Small Engine Mechanic	Fibre Preparation Production Machine Operator
Diesel Mechanic	Industrial Production Manager
Heavy equipment mechanic	Quality Manager
Tractor Mechanic	Footwear Designer
Forklift Mechanic	Food inspector
Mechatronics Technician	Production/operations supervisor (manufacturing)
Lift mechanic	Clothing, Textile and Footwear Manufacturing Process Control Technician
Weapon Systems Mechanic	Production Coordinator
Electrical Equipment Mechanic	Toolmaker
Armature Winder	Master Toolmaker
Transportation electrician	Non-motorised transport equipment repairer
Cable jointer	Precision instrument maker and repairer
	Textile, Leather and Related Materials Handicraft Workers
	Cabinet Maker
	Yarn Production Machine Operator
	Man-made Fibre Production Machine Operator
	Knitting Machine Operator
	Clothing, Textile and Leather Goods Production Operator
	Leather Processing Machine Operator

Occupations in High Demand (4)

Energy Related Occupations in the 2020 OIHD	Tourism, Food and Accommodation Occupations in 2020 OIHD
Electrical engineer	Hotel or motel manager
Electrical Engineering Technician	Caravan Park and Camping Ground Manager
Electronic engineering technician	Travel Accommodation Inspector
Electrical Installation Inspector	Travel Agency Manager
Concentrated solar power (CSP) plant process controller	Chef
	Gaming worker
	Travel consultant
	Bus Hostess
	Marine steward
	Railway steward
	Tour guide
	Butcher
	Confectionary Baker

Occupations in High Demand (5)

Agriculture, Forestry and Fishing in 2020 OIHD	Digital Economy Occupations in 2020 OIHD
Agricultural farm manager	Information Services Manager
Forestry operations supervisor	ICT Project Manager
Marine biologist	Data Management Manager
Agriculture consultant	Application Development Manager
Agricultural scientist	Information Technology Manager
Wine Maker	Information Systems Director
Food and beverage scientist	Multimedia Designer
Agricultural Engineer	Web Designer
Agricultural Engineering Technologist	ICT Systems Analyst
Horticultural farmer	Data Scientist
Mixed crop and livestock farmer	Software Developer
Tree feller	Programmer Analyst
Diver	Developer Programmer
Crop Produce Analyst	Multimedia Specialist
Tobacco Grader	Web Developer
Cotton Grader	Applications Programmer
Wool Classer / Grader	Computers Quality Assurance Analyst
Agricultural mobile plant (equipment) operator	Database Designer and Administrator
	Systems Administrator
	Computer Network and Systems Engineer
	Network Analyst
	ICT Security Specialist
	Marine GIS Technician
	Airborne electronics analyst
	ICT Communications Assistant
	Computer Network Technician
	Geographic Information Systems Technicians
	Coding Clerk
	Data entry operator

Occupations in High Demand (6)

Education occupations in 2020 OIHD	Human Health, Wellbeing and Social Work in 2020 OIHD
School Principal	Biotechnologist
FET College Principal	General medical practitioner
Faculty Head	Registered Nurse (Child and Family Health)
District Education Manager	Registered nurse (community health)
Educational Rector	Registered Nurse (Critical Care and Emergency)
Educational Registrar	Registered nurse (medical)
Departmental Head	Registered Nurse (Medical Practice)
University Lecturer	Registered Nurse (Mental Health)
University Tutor	Registered nurse (surgical)
TVET Educator	Nurse educator
FET Phase School Teacher (Grades 10-12)	Hospital pharmacist
Senior Phase School Teacher (Grades 7 - 9)	Industrial pharmacist
Foundation Phase School Teacher	Retail pharmacist
Intermediate Phase School Teacher (Grades 4-6)	Safety, Health, Environment and Quality (SHE&Q) Practitioner
Early Childhood Development Practitioner	Life science technician
Education or Training Advisor	Child Care Worker
Special Needs Teacher	Family day care worker
	Nanny
	Out of school hours care worker
	Child or youth residential care assistant
	Residential care officer
	Aged or disabled carer
	Community healthcare worker (CHW)
	Fire Fighter
	Hazardous Materials Removal Workers

WEF Future of Jobs 2020

The 2020 WEF report points out that the following 10 occupations are emerging as key for the South African economy:

1. Process automation specialists
2. Data analysts and scientists
3. Social psychologists
4. Management and organisation analysts
5. Business development professionals
6. Big data specialists
7. Assembly and factory workers
8. Compliance officers
9. Chemists and chemical laboratory scientists
10. AI/Machine learning specialists

Identification of Skills Gaps (1)

- Skills gaps have been identified as part to the ERRP SS to ensure the provision of agile, flexible and demand-led skills development programmes to the following three categories of beneficiaries:
  - Employed persons who require reskilling and or/upskilling
  - New entrants to the labour market who may require work readiness or short skills programmes
  - Other unemployed persons whose chances of employment need to be improved (including for self-employment)

Identification of Skills Gaps (2)

- SETA surveys have also provided a window into the areas where South Africans require the most soft-skill-support. These areas are as follows according to engagement with the SETAs:
  - Project, client/customer, and risk management
  - Leadership and conflict resolution
  - Coaching and mentoring
  - Problem solving and decision making
  - Communication and negotiation
  - Basic technological know-how
  - Work readiness
  - Adaptability
  - Strong work ethic and emotional intelligence
  - Teamwork
  - Entrepreneurial ability
  - Diligence and time management

Identification of Skills Gaps (3)

Focus area	Skills Gap
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
	Photoshop rendering
	Rigging and slinging at heights
	Attrition testing
	Construction monitoring
	Occupational health and safety knowledge
	System installation and repair
	Monitoring and Evaluation
	Software and systems engineering
	Data science
Manufacturing	CAD
	CAM
	Conceptual and 3D design
Tourism	Digitalisation of processes related to tourism
	Data analysis (elementary, intermediate, and high-level skills)
	Social media marketing
	Foreign language skills

Identification of Skills Gaps (4)

Focus area	Skills Gap
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	Conceptual and 3D design
Tourism	Digitalisation of processes related to tourism
	Data analysis (elementary, intermediate, and high-level skills)
	Social media marketing
	Foreign language skills

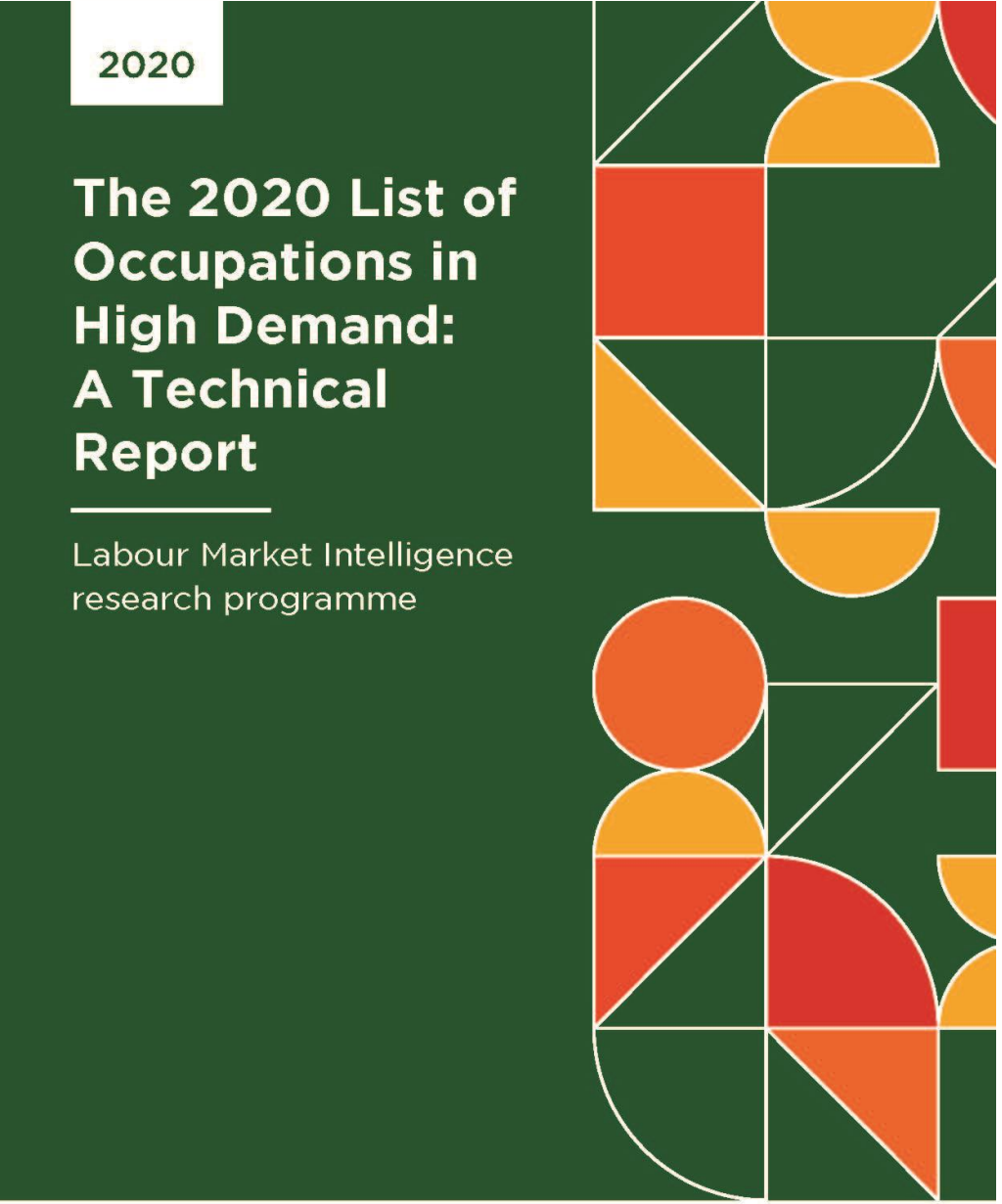
Identification of Skills Gaps (5)

Short-term digital skills gaps	Longer term digital skills gaps
Cloud architecture	Artificial Intelligence
Cybersecurity	Biotechnology
Data centre operations	Blockchain
Desktop support engineering	Data analysis
Enterprise architecture development	Data science
Integrated systems development	Internet of Things
Design of learning management systems	Machine learning
Network analysis, control, and security	Nanotechnology
Software development engineering	Quantum computing
Systems engineering	Robotic automation

Skills supply and demand mismatches in South Africa

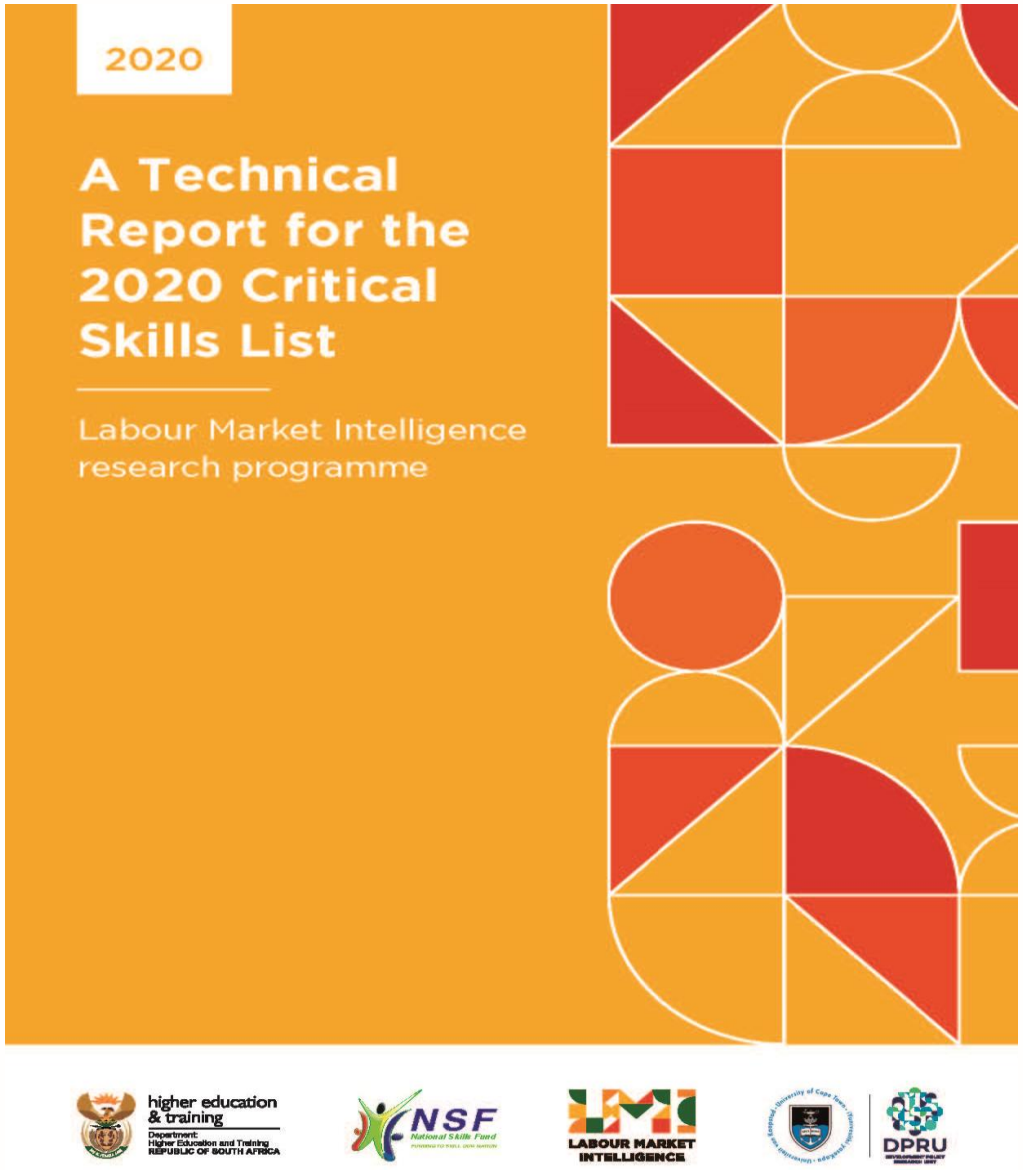
Year	Under-qualification	Over-qualification	Field-of-study mismatch
2019	29.5%	21.6%	33.2%
2020	30.0%	21.5%	32.5%

- The levels of education-job mismatches in South Africa are very high
- 51.5% of South African workers were employed in an occupation for which they did not have the correct education level
- About 21.5% of South African workers are over-qualified for their jobs - their highest educational attainment level is higher than the one usually required in the occupation they are employed in
- A further 30% are underqualified - their highest educational attainment level is lower than the one usually required in the occupation they are employed in
- 32.5% of South African workers are employed in an occupation that does not match the field of study of their highest educational attainment.



- **A product of the Labour Market Intelligence (LMI) research project**
- **The links to access the gazette and report**:
  - https://lmi-research.org.za/publications/
  - https://www.dhet.gov.za
  - http://www.gpwonline.co.za/Gazettes/Gazettes/43946_27-11_HighEduTraining.pdf

Other Similar Lists



Critical Skills List

- Identify skills needed for immigration purposes
- Informs the recruitment of critically skilled foreign nationals where the South African labour market is unable to create such skills in the short-term
- DHET in the process of updating the Critical Skills List to take into account the impact of Covid-19, the implications of the ERRP and stakeholder inputs to the draft CSL

LABOUR MARKET iNTELLIGENCE

THANK YOU