



**ESCALATORS
AND ELEVATORS:
UNDERSTANDING
THE SKILLS AND
TASKS THAT SUPPORT
OCCUPATIONAL
TRANSITIONS FOR
YOUNG PEOPLE**

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EXECUTIVE SUMMARY

Getting a first job provides work experience essential to improving future labour market outcomes. But once is a job, there is still a challenge of how to transition to occupations with better career prospects and earnings.

Young people lack the ability to identify potential future occupations based on their existing skill set. Harambee Youth Employment Accelerator, as a key ecosystem player and pathway manager wanted to better understand the potential pathways and transitions open to young people in the South African labour market.

The US-developed O*NET database was used to inform a tasks and skills mapping of the top 20 occupations in which young people aged 15-34 years were employed in the South African labour market. The focus on these 20 occupations was prudent given that they account for around 50% of employed youth. Thus, understanding the ways in

which the pathways to better employment prospects can be accelerated, could have a potentially large impact in the South African labour market. The ultimate aim of the research was to identify future employment pathways with greater earning potential based on the tasks and skill-set young people develop in their current occupation. The analysis provided useful insights about the South African labour market, the role for pathway managers such as Harambee and the need for improved data to better support the occupational analysis, transitions and earnings.

KEY INSIGHTS

Key Insight 1: In the South African economy, low skilled jobs do mean low wage, however in the top 20 occupations there is some variation in earnings. The top 20 occupations account for 50% of youth employed, of which many young people are employed in elementary occupations. The South African labour market is characterised by limited occupational transitions for those in elementary occupations, with the more than three quarters of the employed remaining in these elementary occupations for their whole working life and only 5% transitioning to managerial occupations. This would suggest a need to understand the factors which support transition to higher skilled occupations to a greater extent.

Key insight 2: Young people are developing skills while employed, even in elementary occupations. According to the skills mapping exercise, the most prevalent skills amongst the top 20 jobs were: Speaking, Active Learning, Critical Thinking, Time Management, Active learning and Judgement and Decision Making are classified as "Basic Skills" in O*NET, and being developed in many of the jobs analysed.

Key insight 3: There is a potential employment trajectory for some young people, but it is dependent on current occupation. There is thus a need to segment employed young people to better understand the interventions required.

- We identify employed young people as having **constrained transition potential** when they are employed in occupations such as waiters/waitresses, hairdressers/barbers, cleaners, cooks, domestic workers and farm labourers. These occupations do not offer the immediate opportunity to transition to higher paying occupations as the skills developed and tasks undertaken lead to occupation with earnings bands similar to their existing occupations. This group accounts for around 978 000 young people. However, this does not detract from the fact that these occupations provide employment opportunities for young people and there is a possibility of self-employment in some instances such as for hairdressers/barbers. For this group of young people, interventions would require re-skilling programmes in order to move young people into higher earning occupations or support around entrepreneurship.
- Based on the data, a group of young people are presented with **limited transition potential**, where earnings growth is possible based on their current skills and tasks performed. These include occupations such as drivers, motor vehicle mechanics, construction workers, plumbers, security guards, office clerks, retail sales persons, hand packers and cashiers, which account for approximately 1, 405, 000 jobs. Amongst these are occupations which are cyclical in nature, impacted by economic shocks as well as being vulnerable to automation. Here interventions can support young people to better **understand the skills and tasks they are performing in their current occupation**, while also focusing on **skills development and re-skilling as their current occupations become digitised.**
- **There is a pool of talent within the top 20 occupations which can move to higher paying occupations with better**

career prospects. The group of occupations in the top 20, with high transition potential leading to higher earnings and career progression include occupations such as computer network specialists, data capturers, switchboard operators/call centre agents, primary school associates and receptionists which account for approximately 160,000 youth. Based on the tasks performed by young people in these occupations there is an opportunity to transition to occupations with higher earnings. Here support can be provided to help young people understand their current skills set and tasks they perform, by providing suggestions on occupations they could transition too as well as engaging employers to understand the skills that young people are building on order to facilitate this transition. Given the size of this group, the ecosystem cannot only depend on moving this group of young people up the occupational ladder to allow for new labour market entrants. Thus, it would be important for additional interventions to be undertaken in parallel.

Key Insight 4: The earnings data shows that majority of occupations in the top 20 and the recommended jobs have monthly median earnings of less than R10 000, but with a cluster of earnings below the R5 000 per month.

Key Insight 5: While the analysis has focused on technical skills and tasks performed, for many young people the soft skills needed to perform a job is often lacking. These may include time management, client engagement and working in teams. It is thus important to recognise the importance of the development of soft skills in conjunction with technical expertise to ensure successful labour market transitions.

Key Insight 6: The research further suggests that the South African economy lacks "sophisticated" jobs. With many of the youth being employed in low wage (minimum wage R3 500), low-skilled occupation there is a need to focus on those jobs which are emanating in the digital economy including digital platforms and digitally traded services such as the global business services (GBS) (Average earning of R6 000). Industry and government need to support employment creation in these new sectors as they have the potential for large employment creation and provide higher income-generating opportunities for young people.

Key Insight 7: Identifying possible occupational transitions can also be undertaken using the European Commission's Skills, Competencies, Qualifications and Occupations framework called ESCO. ESCO provides a similar ontology to ONET, where occupations are linked to skills. One difference between the frameworks is that ESCO's 'Skills' are verb-phrases (e.g. "greet guests" as a skill for a receptionist) which are most similar to what ONET calls tasks or work activities.

Key Insight 8: Ensuring that "youth friendly" language is used when detailing skills and tasks. By doing this the accessibility of these terms for young people will be improved.

CALL TO ACTION

Moving young people into higher earning occupations with career progression will require a shift in the way the labour market views skills, in particular the **transferability of skills.**

Helping young people to identify what skills they are building in their current occupations is an important aspect of developing the labour pool in the country. In addition, there is a need for transformation in the education system to better respond to industry demands as well as the rapid growth in digital jobs and sectors such as global business services (GBS). Amongst employers, perceptions around the abilities of young people needs to be re-evaluated, in particular what constitutes screening criteria for young job seekers, in moving away from a focus on degree qualification may be an important factors for supporting inclusive job creation. If this change is achieved it will facilitate the movement of new labour market entrants as young people move into entry level occupations and others move up the occupational ladder into high earning occupations.

The call to action focuses on how labour market actors including Harambee can support the shift in focus.

Young people within the South African labour market need interventions specific to their needs. A young person who is Not in Education Employment or Training (NEET) requires a very different type of support than a young person who has work experience. For young people who are employed, there should be a focus on the level of education and skills set they have as well as the task they are performing in their current occupation. By helping young people identify these skills and task, pathway managers such as Harambee can make suggestions to young people on the types of occupations they can apply for. In addition, young people can independently use the O*NET database or similar database as a tool to understand their skill sets and what would be required of them to move into occupations with potential higher earnings.

Harambee

As pathway manager and key ecosystem player Harambee has a role to play in multiple ways either directly or by contributing evidence into the system to influence young people, public sector institutions and labour market databases.

- **Young people:** Harambee should provide information to young people on the types of occupations and earnings potential in these occupations. It should continue to build and expand on its own data collection through its "My employment journey" survey to complement official data, in particular, building understanding why young people within this survey appear to have greater success in their occupational transitions including to higher earning occupations, in particular related to their education profile and location.
- **Government:** Working closely with government institutions will be important. This includes the Department of Education to better understand the skills needs from a supply side perspective, Harambee can support occupational matching by ensuring the education system is responsive to market needs, focusing on new and expanding industries in the South African labour market. In addition, the Department of Labour should also be consulted on labour market policies which support employment creation, as well as the National Treasury regarding funding requirements including those mentioned below related to data requirements.
- **Data:** Improving the data available for decision making, through engaging Statistics South Africa in particular on refining the occupational coding to align better the current labour market conditions in order to capture new occupations. Many occupations are "lumped" together under one occupational code, which limits the analysis which can be undertaken. Official labour market statistics

does not always capture other income generating activities in addition to the main labour market status (employed, unemployed, not economically active). However, many young people engage in side hustles even though they may see themselves as unemployed according to official definitions. Understanding the various activities which young people engage in, and thus the skills they are building is important to build on this research.

Employers

Organisations that facilitate pathways in the economy such as Harambee should engage employers and industry bodies on the demand side to build awareness around the skills that young people are building in an occupation as well as the tasks they are performing, but also to understand from employers how they see occupational transitions occurring in their industries and where skills gaps exist. Industry specific investigations regarding the skills requirement would be required to tailor the engagement with employers around their particular skills requirements. There is also a need to change how the "screening" of potential employees is undertaken, this also include changing perceptions of what makes a successful worker. In the South African labour market perception around the poor quality of the education system has made the level of education a key marker for success, especially for young people. However, research has highlighted the fact that previous work experience whether in the informal or informal sector improves employment outcomes in terms of transition into employment as well as retention in employment.





1. INTRODUCTION: SUPPORTING YOUNG PEOPLE'S TRANSITION IN THE LABOUR MARKET

Harambee Youth Employment Accelerator (hereafter "Harambee"), as a key ecosystem player in the South African labour market, has a long-standing partnership with the South African government engaging across a number of areas including economic growth, youth development and public employment services. Harambee has strengthened its relationship with the National Youth Development Agency (NYDA), a leading youth organisation in the country. Harambee is currently fulfilling the role of National Pathway Manager, adopted by the Presidential Youth Employment Intervention, codified in the Presidential Jobs Summit framework agreement, and supported by business leadership in the Public-Private Growth Initiative (PPGI). As an organisation it has worked closely with a coordinated government task team, led by a Project Management Office in the Presidency, to design this national pathway management network. The focus of pathway management is to shift the understanding on how new jobs can be created, existing jobs preserved and how informal work can be scaled.

In order to support young people to better identify the possible pathways to occupations with greater earnings and career progression, Harambee was interested in understanding the skills which a young person develops within a current occupation. By identifying these skills, occupations with related skills and tasks could be identified which could then create a future employment pathway that has greater earning potential. The United States' O*NET database was identified by Harambee as an interesting reference and key data source for linking skills acquired and related occupations.

Harambee contracted Genesis Analytics (hereafter "Genesis") to design a toolkit and detail an approach for Harambee to map skills and tasks based on the O*NET database. The main aim was to undertake an occupational mapping from the top 20 occupations held by young people. This would provide learnings for Harambee on how to provide information and support to young people to undertake a transition based on their current occupation. By identifying these transitions and the potential occupations available, young people could be supported to navigate the labour market more effectively, in particular to assist them to identify higher earnings opportunities and a more sustainable career path.

While there is significant churn in the labour market as young people move between occupations, the transitions from low to medium and higher skilled occupations are limited. Labour market data suggests that majority of participants in the labour market tend to remain employed in elementary and semi-skilled occupations. Furthermore, when youth are unemployed or not economically active, they are more likely to find a job in elementary occupations or sales and service work, where these occupations serve as an entry into the labour market. Thus, there is a need for interventions which support transitions, with the provision of information to young about potential occupation transitions based on your current skills or tasks. A study by the OECD recommended that policy makers need to improve job quality for youth in employment by providing better opportunities to move into more rewarding and productive jobs. In addition, the OECD found that there was relatively high labour market insecurity for youth in developing economies, with approximately 10% of South African youth at risk of facing extreme low pay with an even higher incidence in the informal sector.

Figure 1: Transitions between elementary, semi-skilled and managerial occupations, 2008 to 2010.

		Occupation in 2010		
		Managerial/ Professional	Semi-skilled	Elementary Occupations
Occupation in 2010	Managerial/ Professional	77.6	17.3	5.1
	Semi-skilled	15.2	66.6	18.2
	Elementary Occupations	5.1	21.5	73.4

Sources: SALDRU, working papers, Labour Market: Analysis of the NIDS Wave 1 and 2 Datasets, Paul Cichello, Murray Leibbrandt and Ingrid Woolard Adults aged 20-55 years in 2008, in regular wage employment.

In looking at South African data on transitions and retention from the National Income Dynamics Study, the retention rate across all occupational types was high, ranging between 66.6% for semi-skilled occupations to 77.6% for managerial

occupations. For elementary occupations 21.5% of individuals moved to a semi-skilled occupation between 2008 and 2010, but only 5% found a managerial or professional occupation over this two-year period.

Figure 2: Transitions and retention rates for service and sales works, craft and related workers and elementary occupations between 2008 and 2015.

Wave 1 (2008) Occupation	Youth in same occupation for regular job across all 4 waves. Yes	Youth in same occupation for regular job across all 4 waves. No
Service and sales workers	38%	62%
Craft and related workers	17%	83%
Elementary Occupations	36%	64%

Sources: SALDRU, working papers, The extent of churn in the South African youth labour market: Evidence from NIDS 2008-2015.

The services and sales occupations and elementary occupations play an important role in creating employment opportunities for young people to enter the labour market. Youth who are regularly employed in this occupation seemed to be more stably employed. Panel data between 2008 and 2015 showed that about 38% of those who were regularly employed as Service and Sales Workers in Wave 1 were regularly employed in a service and sales occupations throughout all four waves of the study. This also highlights the fact that these occupations do

not facilitate transitions into other potentially higher paying occupations.

The study also found that experience supports the youth transition from unemployment to employment and that older youth were better off. 67% of youth aged 30-34 years old were persistently employed while only 45% of youth aged 20-24 years old were persistently employed. Thus, creating additional labour market opportunities for youth remain important for them to successfully transition in the South African labour market

¹ O*NET Database, <https://www.onetonline.org/>

² OECD (2015), South Africa Policy Brief: Tackling High Youth Unemployment, <https://www.oecd.org/southafrica/south-africa-tackling-youth-unemployment.pdf>

³ OECD (2015), Job Quality OECD, <https://www.oecd.org/sdd/labour-stats/Job-quality-OECD.pdf>

2. PROJECT PURPOSE



2.1. UNDERSTANDING YOUNG PEOPLE'S CURRENT JOB-SKILLS

South African youth face many challenges when they enter the labour market including a lack of information regarding where and what types of jobs are available. Even when they do find employment their ability to progress into occupations with higher earnings and greater career prospects is often limited, with many entering and staying in elementary occupations. Many occupations and/or employers do not offer regular wage increases or a career path in which a young person can anticipate a promotion and a corresponding salary increase. This results in young people remaining "stuck" and not experiencing income growth over the years in the labour market.

The two important elements for transitioning into higher paid occupations are skills and experience. This research aimed to understand how young people in low paid occupations with entry level skills might be able to move into occupations with higher earnings by applying the skills they have learnt or the acquisition of adjacent / similar skills. Thus, the research aimed to identify specific skills and tasks performed and associated earnings in the young person's current occupation, and identify potential occupational transitions where earnings are also higher.

In its role as a pathway manager, Harambee is responsible for identify the pathways to opportunities across both the formal and informal sector, including the development of a pathwaying-platform which functions not only as matching engine but also provides recommendations to young people, deploying market intelligence to identify factors affecting employability. The recommendation engine intends to overcome the information barriers facing young people in the labour market.

To this end, the insights offered by this research project seek to provide guidance as to how Harambee can support young people to better identify jobs with similar skills/task based on their current occupation.

Using O*NET's database to provide examples of the types of occupational transitions that can be made based on corresponding skills and tasks, Genesis conducted a mapping exercise of the top 20 occupations currently employing young people in South Africa and the related occupations based on both skills and tasks performed. As a pathway manager, this research will help strengthen Harambee's approach to supporting young people in their transition and also engage stakeholders on how to best ensure there is greater youth participation in the labour market.

3. METHODOLOGY

3.1. IDENTIFYING THE TOP 20 OCCUPATIONS IN WHICH YOUTH ARE EMPLOYED

The first step for this study was to identify the occupations in which young people aged 15-34 years were currently employed. Two different databases were used: (1) Stats SA's Quarterly Labour Force Survey (QLFS), and (2) data from Harambee's database based on its My Employment Journey Survey.⁴

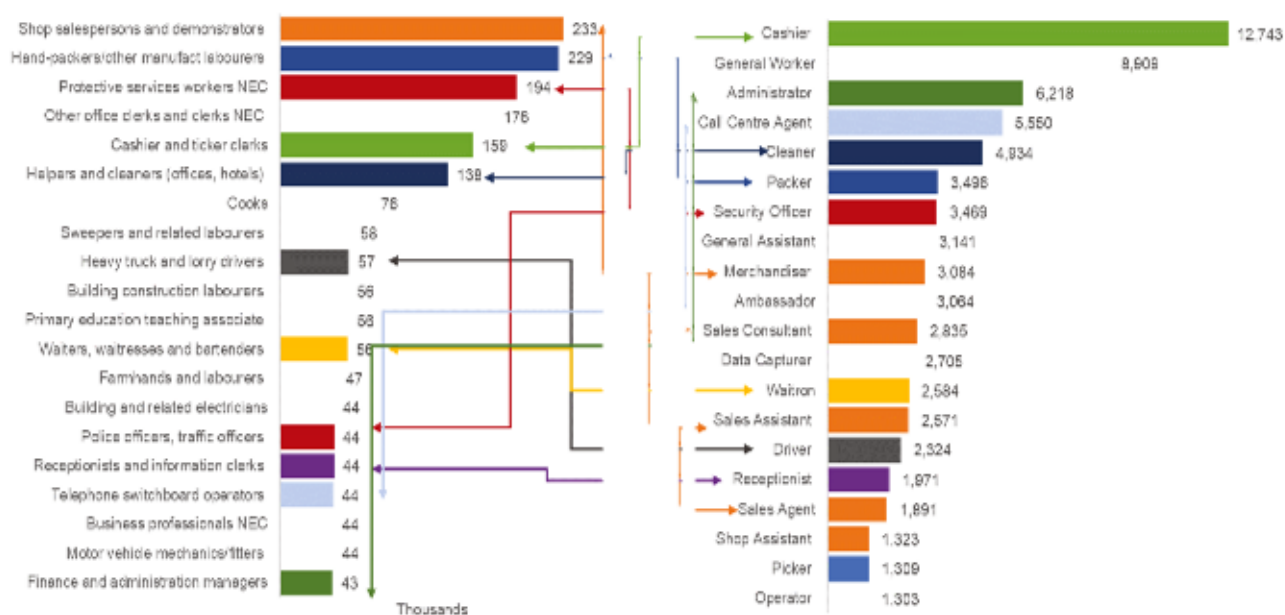
Figure 3: Process for identifying top 20 occupations in which youth (15-34 years) are employed.



The QLFS youth occupational data was compared to the Harambee My Employment Journey Survey data to identify the differences between the top 20 occupations in which youth are employed. Harambee's database identified a larger number of youths employed in medium and higher skilled occupations which is consistent with the types of youth targeted by the organisation.

⁴ Data from Stats SA was from the period Q1 - Q3 2020 and focused on occupations that youth aged 15 - 34 were employed in while Harambee's data focused on occupational titles self-identified by young (18 - 35-year-olds) employed between July 2020 and March 2021 across South Africa.

Figure 4: Comparison of youth employment by occupation, QLFS (LHS) vs Harambee data (RHS)



Source: Stats SA, QLFS, Q1-Q3 2020, data in thousands, Harambee My Employment Journey survey 2020/2021, data actual number.
Note: Not elsewhere classified (NEC), QLFS employment data refers to the formal sector.

Figure 4 above details the matching of occupations highlighting the alignment across the two databases. These included the following occupations:

- Shop and sales assistants
- Packers
- Cashiers
- Waiters
- Security guards
- Receptionists

The top 20 occupations were selected by synthesizing⁵ the occupation titles that occurred most frequently in the two databases and were used as a basis for the subsequent skills and tasks mapping exercise using O*NET's database. Table 1 details the final list of 20 occupations in which South African youth are currently employed.

Table 1: Top 20 formal sector occupations for young people (15-34 years)

Occupation	Occupation
Barber/Hairdresser	Hand Packers & Manufacturing Labourers
Building Labourers	Motor Vehicle Mechanics
Cashier	Office Clerk
Cleaners/Labourers/Sweepers	Plumber
Computer Network Specialists	Primary School Associates
Cooks	Receptionists
Data Capturer	Retail Salespersons
Domestic Workers	Security Guards
Drivers	Switchboard Operator/Call Centre Agent
Farmhands and labourers	Waiter/Waitress

Note: Occupations alphabetically ordered.

⁵ Job title naming conventions differed and so the analysis tried to align the terminology into a single set of occupation titles.

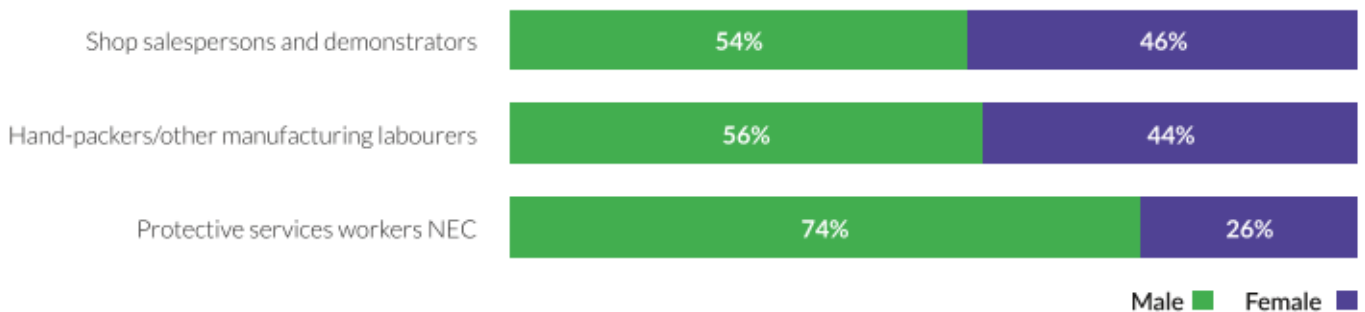
3.1.1. Characteristics of youth employed in the top three occupations

Based on the QLFS data, the top 20 youth occupations, account for 50% of employed youth. The figures below provide additional insights on the characteristics of the individuals employed in the top three occupations in the formal sector.

Using the Stats SA QLFS data, characteristics across the youth labour force for the top three occupations, were analysed. These included: gender split, education and the contract duration.

The gender split across the top three formal occupations showed that shop salespersons, demonstrators and hand-packers/other manufacturing labourers have a relatively equal gender split in terms of employment. While protective services workers are predominantly male. Overall, there are more young men employed in the top three formal occupations than women.

Figure 5: Distribution of top three formal occupations for youth, by gender



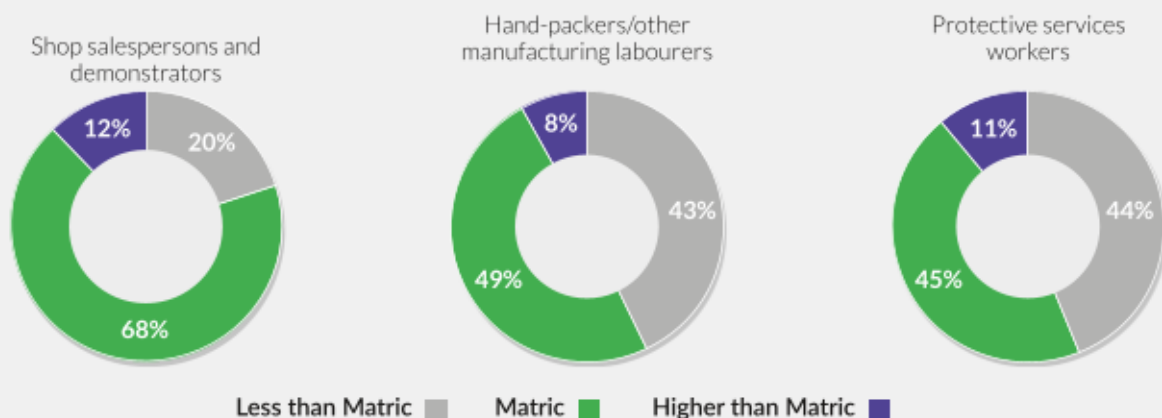
Source: Stats SA, Quarterly Labour Force Survey (QLFS), Q1-Q3 (2020).

Note: Protective service workers NEC include Security guards, security officers and taxi guards. Not elsewhere classified (NEC).

The education split across the top three formal occupations shows that majority of youth in these occupations have a Matric qualification as their highest level of qualification.

This is followed by "Less Than Matric" while a very small percentage have a post-secondary schooling qualification.

Figure 6: Distribution of top three formal occupations for youth, by level of education

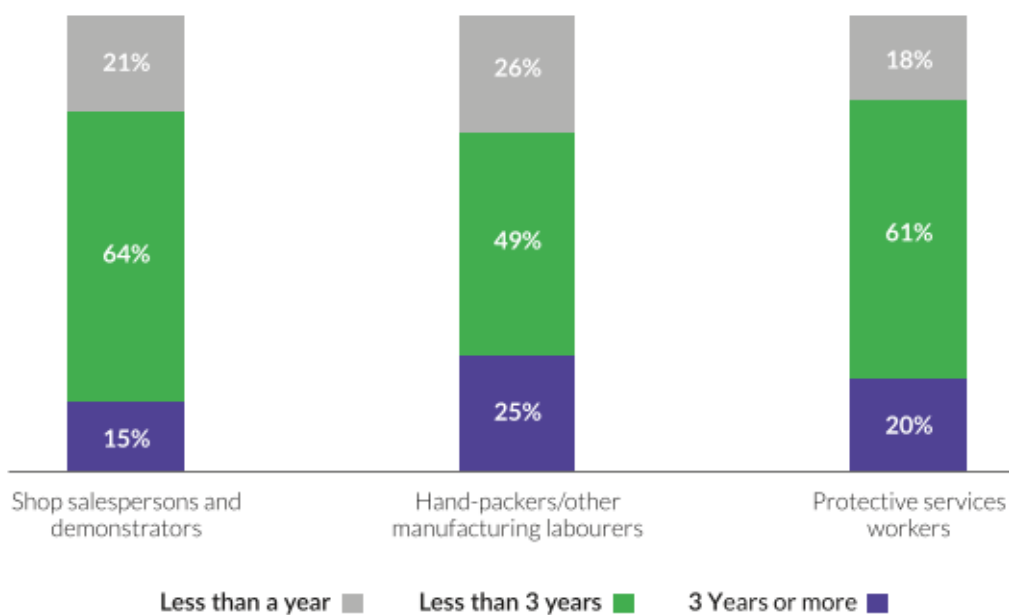


Source: Stats SA, Quarterly Labour Force Survey (QLFS), Q1-Q3 (2020).

The QLFS survey asks participants about their working conditions. The majority of youth 15-34 years were employed in the top three formal occupations had contracts that lasted between one and three years. Given that majority

of the youth in these occupations work on limited duration contracts, they are more vulnerable in the labour market due to the short-term nature of their employment.

Figure 7: Distribution of top three formal occupations for youth, by contract duration



Source: Stats SA, Quarterly Labour Force Survey (QLFS), Q1-Q3 (2020).

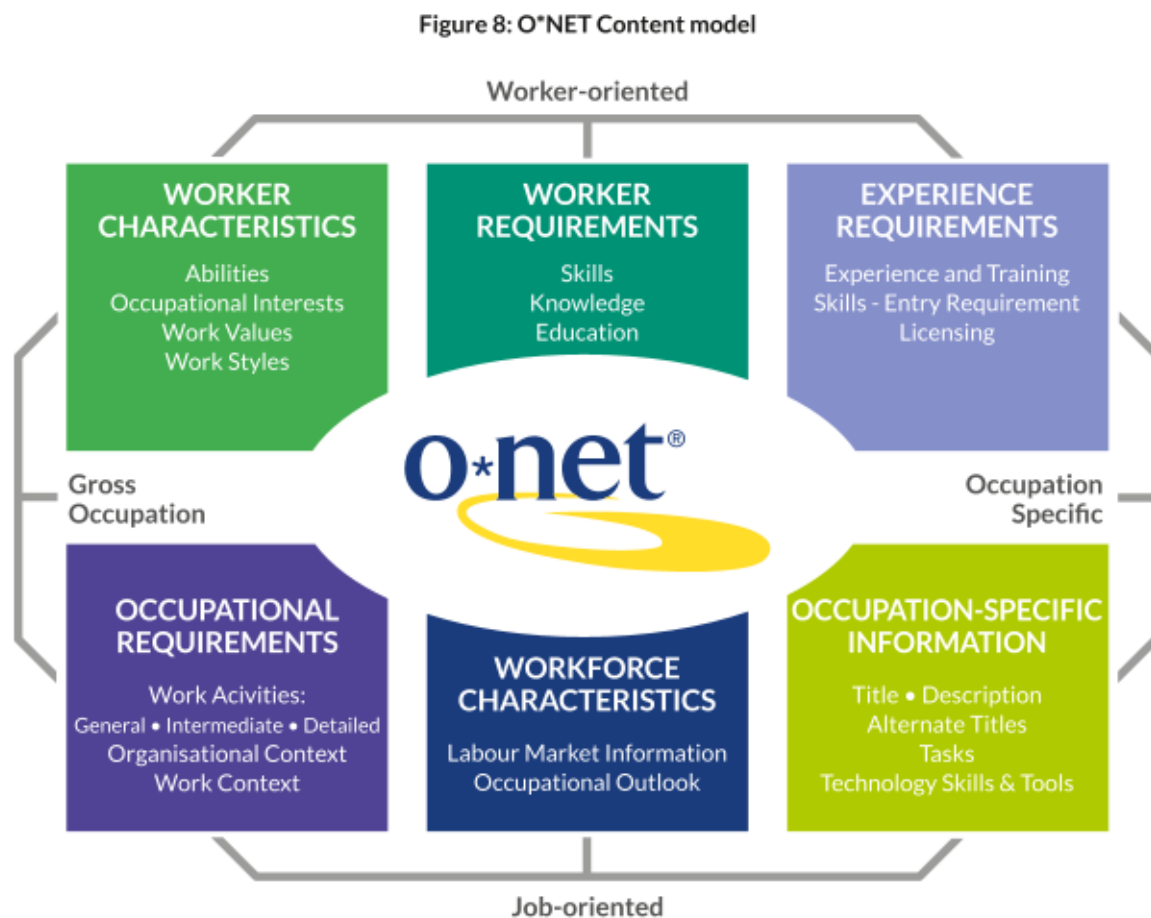


3.2. NAVIGATING O*NET DATABASE TO MAP SKILLS AND TASKS

O*NET's database is the primary source of occupational information in the United States (US). The database provides information on almost 1,000 occupations covering the entire US economy. The data collection for the database commenced in June 2001 with data being collected in a two-staged design in which 1) a statistically random sample of businesses expected to employ workers in the targeted occupations are identified and 2) a random sample of workers in those occupations within the sampled businesses are selected. Questionnaires are divided into 'generic' and 'additional' questionnaires. The 'generic' questionnaires, include questions on background, education and training, knowledge and work activities. While the 'additional' questionnaires, have questions related to the individuals' skills and abilities.⁶ To reduce the burden on respondents,

questionnaires are organised further into three questionnaires and randomized job incumbents are assigned one of the three questionnaires. All respondents are required to complete a task questionnaire and provide demographic information.⁷ Since this type of database does not currently exist in South Africa, the O*NET database serves as a good proxy to fill the gap and helps address the immediate need of identifying potential transitions in the South African labour market.

O*NET's content model is the conceptual framework which determines the various metrics about each occupation. The content model and the domains are presented in Figure 8 and Figure 9 below.



Source: O*NET Resource centre: <https://www.onetcenter.org/content.html>

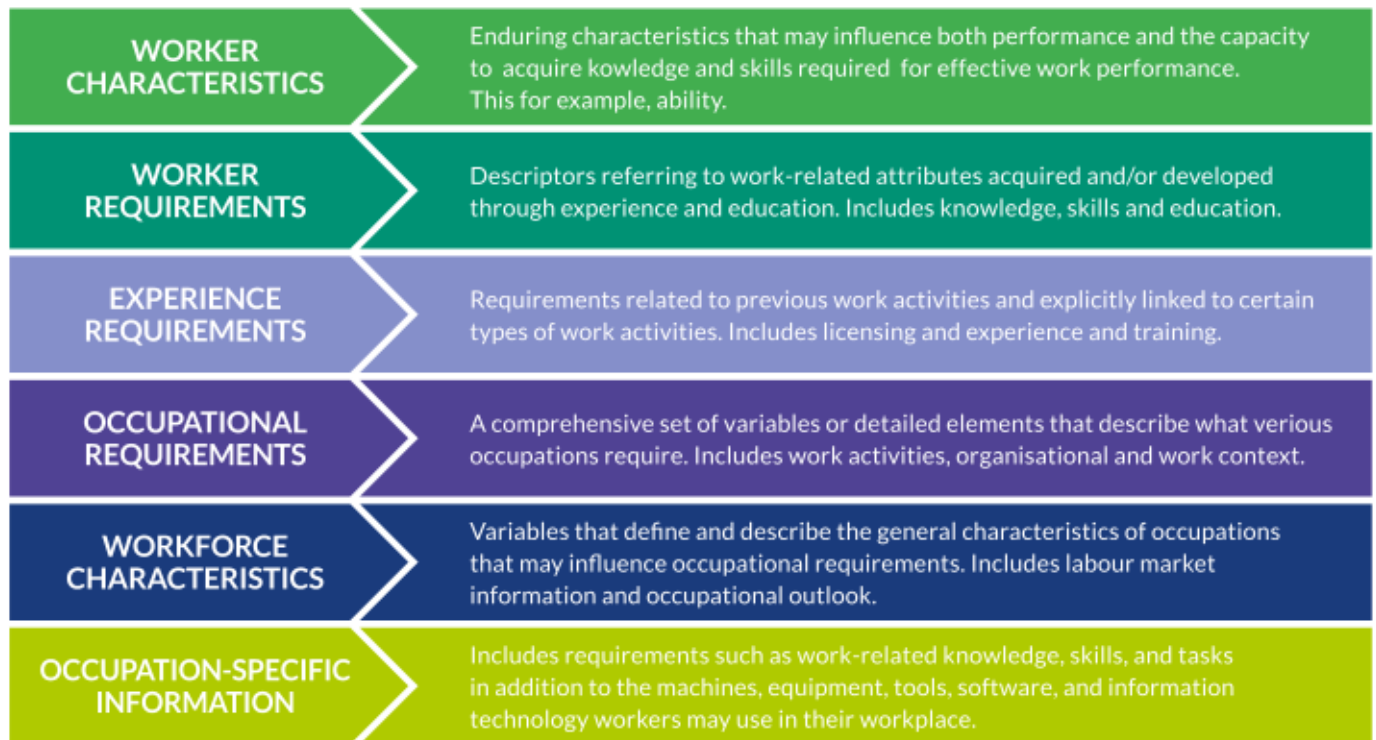
⁶ O*NET Questionnaires (n.d.), <https://www.onetcenter.org/questionnaires.html>

⁷ The O*NET Resource Centre (n.d.), O*NET Data Collection Overview, <https://www.onetcenter.org/dataCollection.html>

O*NET's content model also allows occupational information to be applied across jobs, sectors or industries and within occupations. The descriptors are organized into six major

domains, which enable the user to focus on areas of information that specify the key attributes and characteristics of workers and occupations.

Figure 9: Description of each of the content model domains



Source: The O*NET.



This study used skills and tasks to identify the existing skills used and the tasks or activities carried out by individuals in their

current occupations and thereby identify linked occupations which would be potential occupational transitions.

Table 2: O*NET Definitions of Tasks and Skills

O*NET Element	Description
Tasks	Work activities that are specific to each occupation.
Skills	Capacities developed through education or experience that help you perform your job, such as "reading comprehension."

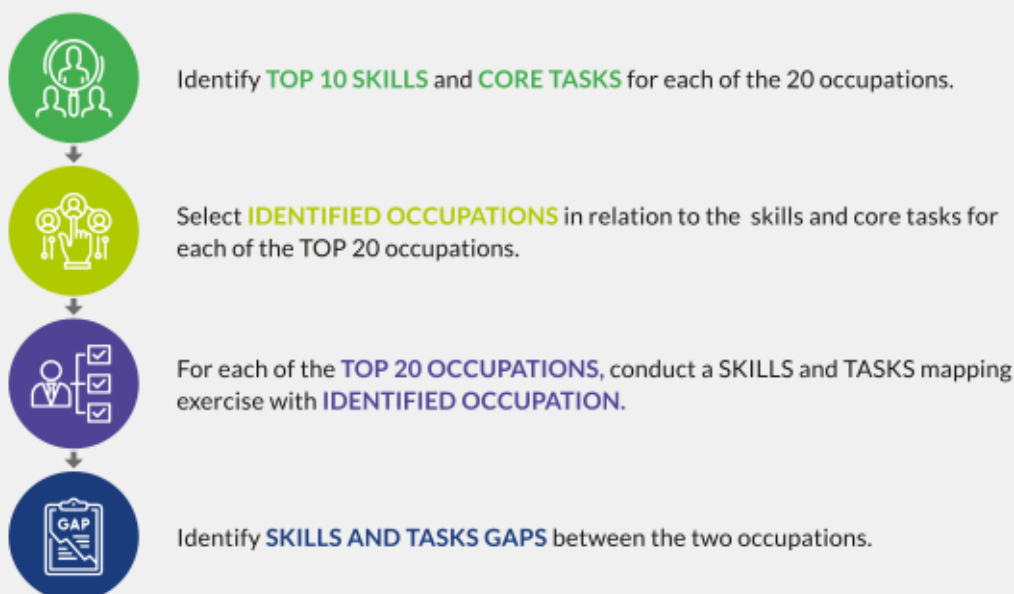
Note: The O*NET database.

Tasks were relevant to this study because they are an easier way of understanding the type of work individuals carry out in their job. In addition, tasks are listed as core and supplementary tasks for each occupation's profile with core tasks being critical to the occupation and supplementary tasks are those that are less relevant to the occupation. Skills provided insights into the skills required within each job. Both tasks and skills are rated on an importance scale which ranges from 0 – 100 and are ranked in descending order on each occupation's profile. For both tasks and skills, ratings provided can range from (1) "Not Important" to (5) "Extremely Important" and would indicate the degree of importance of a particular descriptor to an occupation. Details

on how skills are scored can be found in Appendix 3: O*NET Scoring Methodology.

With the top 20 occupations identified, an analysis of the skills and tasks associated with each occupation was undertaken. This was done by extracting the data on the top 10 skills and the core tasks associated with the top 20 occupations. Based on this information, potential transitions to new occupations were identified based on skills, and any predicted skills gaps. Figure 10 below details the process followed for the analysis of skills and tasks as part of the mapping exercise. Further details on the process can be found in Appendix 1: ONET Skills Mapping.

Figure 10: Process of youth occupational task and skills mapping using O*NET database



3.4. RESEARCH VALUE AND LIMITATIONS

Ensuring youth are able to participate productively in the labour market including reasonable and progressive transitions between different occupations and industries throughout a working life remains a key area of focus for improving the labour market outcomes for young people. Transitions to higher skilled occupations are often difficult, with many employed youth remaining in elementary or semi-skilled occupations. Where transitions are possible, interventions are required to address information asymmetries both for job seekers and employers. For young people information is needed pertaining to the skills they have acquired during employment as well as an understanding of the tasks performed will assist in directing young people to potential occupations where skills and/or tasks are aligned. In certain cases, these occupations offer higher earnings and better career prospects, but could also present different employment parameters that would appeal to different individuals.

On the demand side of the labour market, given perceptions by employers regarding the quality of the education system and preparation for employment, there is also a need for advocacy and a change in approach from an industry perspective. A focus on encouraging employers to be flexible and aware of the type of skills young people are developing in employment, and how these could be applied within other occupations and industries. While South Africa has a dedicated labour market survey published on a quarterly basis there are a number of limitations in terms of the available data. The South African Standard Classification of Occupations (SASCO) is largely outdated and does not capture new and emerging occupations adequately. This means that data collected by Stats SA is not robust enough to allow for an understanding of the new occupations e.g., Digital, ICT and global business sectors, and the relevant skills and tasks. There is also little alignment between Organising Framework for Occupations (OFO) used by the Department of Higher Education for skills planning and the SASCO. There is thus a need to update the SASCO to better identify the existing structure of the South African labour market. In addition, the SASCO occupational codes often "lump" a number of occupations under one code which limits the very disaggregated occupational data analysis.

The following points regarding the data analysis should also be noted:

- When earnings data is analysed at a disaggregated level, the number of identified observations is small, this in turn leads to large variation in earnings. While we presented the median earnings to account for this, sample sizes should be kept in mind.
- Two aspects which also have an influence on earnings in the South African labour market relate to industry and geographical location. The analysis did not focus on these aspects for the research represented in this report.

The skills and tasks identified from O*NET serve as a good baseline to understand the expected abilities of an individual in each occupation. Skills mapping is a useful and intuitive tool, allowing for the identification of the skills gap across occupations as well as the skills that are important for each occupation. Tasks are more intuitive for young people to identify and describe thus making it easier to identify possible transitions.

However, both skills and tasks mapping have their limitations. Using skills as a baseline for understanding an individual's abilities within an occupation does not split jobs into industries only into job zones which makes it difficult to identify transitions within or between industries. Furthermore, skills are very broadly defined in O*NET and youth may not be able to identify the skills they have developed by performing a certain occupation, thus making it more difficult to identify potential occupational transitions.

Using tasks as a form of checklist for identifying related occupational transitions poses its own challenges. For example, the tasks search starts from an occupation base and not a list of generic tasks which limits the occupations that you are able to view. In addition, tasks are worded differently across occupations therefore making it more time consuming when trying to identify where the gaps are in terms of one's daily task's ability.

While the data is useful in understanding the skills and tasks related to occupations, it is based on the US economy therefore the application of the data may be limited in a South African context.

4. FINDINGS

The following section details the potential occupational transitions based on skills, in particular the most prevalent skills amongst the top 20 occupations, skills and tasks mapping processes and the earnings potential for youth based on the tasks they perform in their current occupations.

4.1. OCCUPATIONAL TRANSITIONS

O*NET data was analysed to identify the skills that are most prevalent in the top 20 occupations and using these to identify the related occupations for each of these top 20 occupations.

The table below show the related occupations based on the data collected from O*NET based on the Top 10 skills associated with each occupation.

Table 3: Related occupational for the top 20 occupations based the top five skills for current occupation

Top 20 youth Occupations	Related Occupations
Farmhands and labourers	Agricultural Inspectors; Pest Control Workers; Forest and Conservation Workers
Retail Salespersons	Real Estate Sales Agent; Solar Sales Rep; Wholesale and Retail Buyers
Hand Packers & Manufacturing Labourers	First-Line Supervisors of Production and Operating Workers; Fabric and Apparel Patternmakers; Maintenance and Repair Workers, General
Cashier	Real Estate Sales Agent; Gambling Managers; First Line Supervisors
Data Capturer	Bookkeeping, Accounting and Auditing Clerks; Procurement Clerks; Career/ Technical Education Teachers
Security Guards	Construction and Building Inspectors; Customs and Border Protection Officers; Transit and Railroad Police
Office clerk	Executive Secretaries & Executive Admin Assistants; Legal Secretary; HR Assistants
Cleaners/Labourers/Sweepers	First Line Supervisor of Personal Service Workers; Electrical and Electronics Installers and Repairers (except Line Installers); Fire Inspectors and Investigators
Drivers	Real Estate Sales Agent; First-Line Supervisors; Wholesale and Retail Buyers
Building Labourers	Robotics Technicians; Electricians; Mechanical Engineering Technologists and Technicians
Primary School Associates	N/A
Waiter/Waitress	Nursing Assistants; Occupational Therapy Aides; Tax Examiners and Collectors, Revenue Agents
Plumber	Surveyors; Civil Engineers; Transportation Planners
Receptionists	HR Assistants; Executive Secretaries; Nursing Assistants
Switchboard Operator/Call Centre Agent	Flight Attendants; Compliance Officers; Critical Care Nurses
Domestic Workers	Quality Control Analysts; Nursing Assistants; Construction and Building Inspectors
Cooks	First Line Supervisors; Chefs and Head Cooks; Spa Managers
Motor Vehicle Mechanics	Network and Computer System Administrators
Hairdressers/Barbers	Recreational Therapists; Media Programming Directors; Community Health Worker; Insurance Sales Agents; Government Property Inspectors
Computer Network Specialists	Computer Science Teachers, Computer and Information Research Scientists

Source: The O*NET database.

^o These are transition that are based on the Top 5 important skills per occupation. These are occupations that are recommended in a higher job zone.

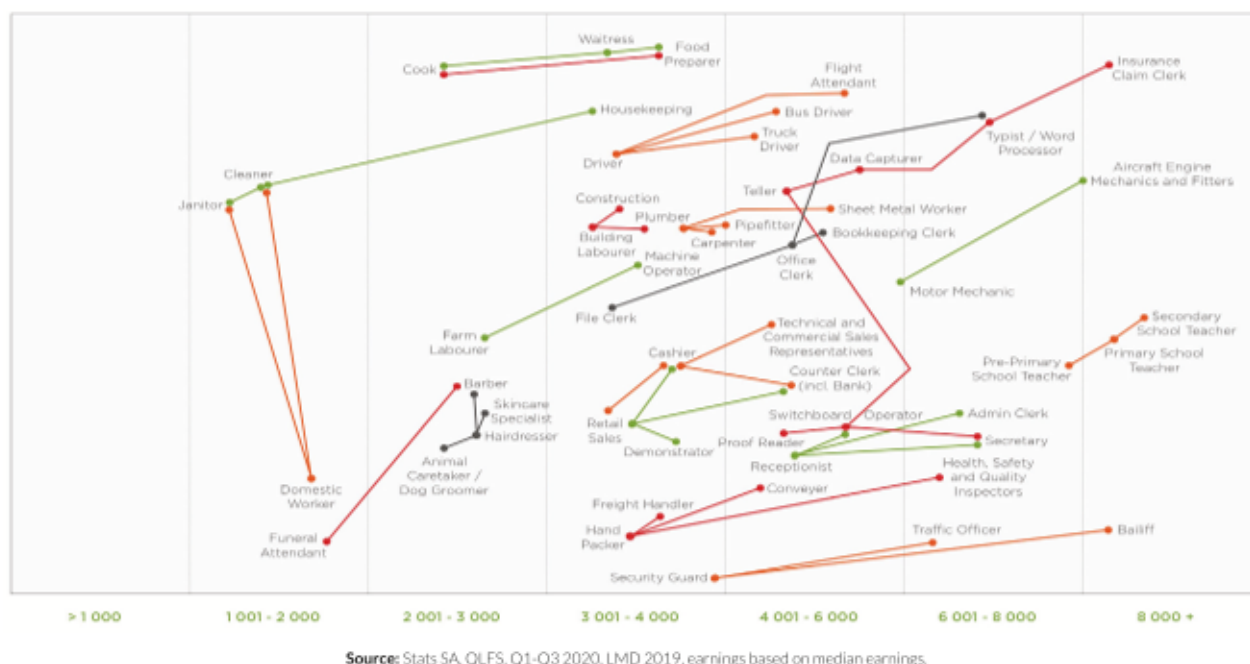
By selecting the top 5 skills from each of the top 20 occupations, a list of related occupations was identified. For example, the top five skills for Farmhands and Labourers included critical thinking, active listening, speaking monitoring and coordination. These skills aligned closely with Agricultural Inspectors and Pest Control workers. By reviewing the information on each of the related occupations, individuals are able to identify occupations to which they could potentially transition.

Analysing the top 20 occupations in which young people are employed finds that these occupations share certain common skills. In particular these relate to speaking, decision making, active learning, critical thinking, coordination, time management and writing.

Figure 11: Word Cloud of the top 10 skills related to the top 20 occupations



Figure 12: Potential youth occupational transitions based on a task mapping



Similarly, the core tasks were selected for each of the top 20 occupations and related occupations were found based on these tasks. Figure 12 details the possible transitions based on tasks and their earnings potential using earnings data from QLFS.

For example, a security guard has a monthly median earning between $R3,001 - R4,000$ and based on the tasks mapping can potentially transition to being a traffic officer, with earnings between $R4,001 - R6,000$.

4.1.1. An example of skills mapping

Skills mapping is key in identifying the skills gap for youth if they desire to move into a different occupation. The example below shows the skills associated with the transition from "Cashier" to "First Line Retail Supervisor"⁹. The skills required for a First Line Supervisor that a Cashier may need to acquire include persuasion, negotiation and

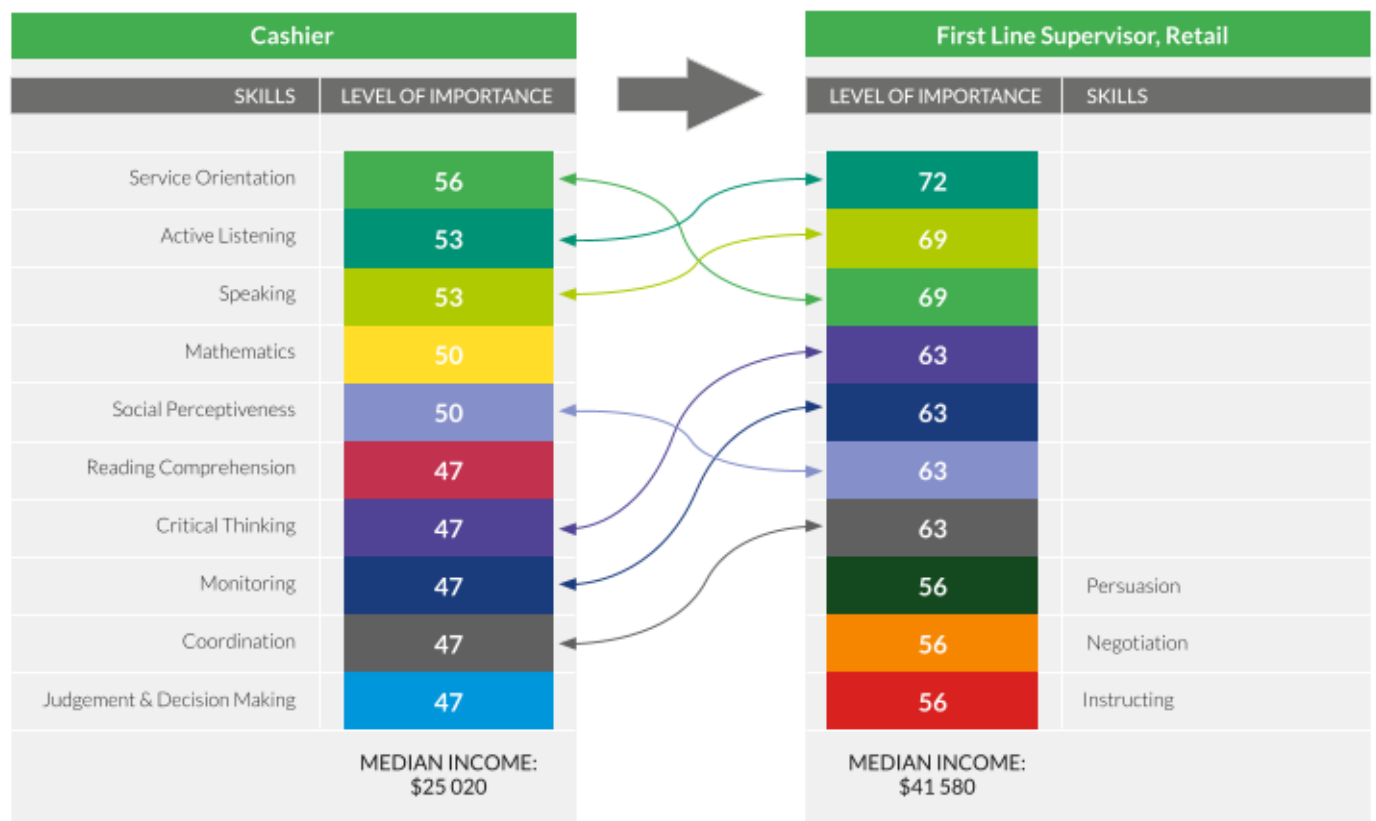
instruction. Furthermore, active listening; monitoring; critical thinking; speaking and coordination are skills that have a higher level of importance in a First Line Supervisor's role suggesting that these are skills that young people would need to improve upon if they were to successfully make this transition in the labour market.

Box 1: Example of skills mapping – Cashier and First Line Supervisor

The O*NET occupational skills classification allows for the mapping of occupation. As skills categories are at a relatively aggregated level such as active listening, the process of mapping is less complicated. One can also identify any gaps in terms of skills between occupations, as demonstrated

below in the mapping from a cashier to a first line retail supervisor, where the gap exists in relation to persuasion, negotiation and instruction. Please see Appendix 3: O*NET Scoring Methodology for additional detail.

Figure 13: Example of the skills mapping process; From cashier to a first line retail supervisor



⁹ First Line Supervisors directly supervise and coordinate activities of retail sales workers in an establishment or department.



The figure below shows the related tasks across the two occupations. When conducting the task mapping it was found that when shifting from one occupation to another, tasks would be grouped together in the suggested occupation.

This mapping is useful to identify the differences in the tasks carried out across occupations but does not provide information on the expertise required to make the transition.

Box 2: Example of tasks mapping

O*NET core tasks mapping exercise allows for mapping of occupations across tasks. The tasks are disaggregated at an occupation level, which makes the process of understanding

of what is expected of an individual at an occupational level but makes it more difficult to conduct the tasks mapping exercise.

Figure 14: Example of the core mapping process; From cashier to a First Line Retail Supervisor

Cashier	➔	First Line Supervisor, Retail
Core Tasks		Core Tasks
Receive payment by cash, cheque, credit card, voucher or automatic debits.		Provide customer service by greeting and assisting customers and responding to customer inquiries and complaints.
Answer customer's questions and provide information on procedures or policies.		Direct and supervise employees engaged in sales, inventory-taking, reconciling, cash receipts or in performing services for customers.
Help customers find the location of products.		Examine merchandise to ensure that it is correctly priced and displayed and that it functions as advertised.
Issue receipts, refunds, credits or change due to customers.		Monitor sales activities to ensure that customers receive satisfactory service and quality goods.
Greet customers entering establishments.		Instruct staff on how to handle difficult and complicated sales.
Supervise others and provide on-the-job training.		Assign employees to specific duties.
Assist customers by providing information and resolving their complaints.		Keep records of purchases, sales and requisitions.
Maintain clean and orderly checkout areas and complete other general cleaning duties, such as mopping floors and emptying trash cans.		Perform work activities of subordinates, such as cleaning and organising shelves, displays and selling merchandise.
Establish or identify prices of goods, services or admission, and tabulate bills using calculators, cash registers or optical price scanners.		Plan and prepare work schedules and keep records of employees' work schedules and time cards.
Answer incoming phone calls.		Review inventory and sales records to prepare reports for management and budget departments.

Note: Occupations alphabetically ordered.

4.1.2. Possible occupational, skills and earnings matrix: Identifying possible pathways based on a task basket and earnings analysis

Using a combination of data from O*NET and StatsSA, we developed a summary table to provide an indication of potential job transitions in the South African labour market. Please see Appendix 5: An approach to Occupational Mapping based on a Task Basket. Using the Top 20 occupations, data was collected on the tasks of each occupation from O*NET's database. Using the alignment in tasks (based on a task basket), related occupations transitions were identified that would seem feasible in the South African labour market. The core tasks and top 5 skills for the related occupations is provided. This will assist in understanding what skills are prevalent amongst

these occupations and whether there are any tasks that are similar across occupations. Median monthly earnings data was used to understand the earnings potential in each of these occupations and what the earnings differentials are in relation to the starting top 20 occupations. Overall, the majority of the top 20 jobs have limited pathways, this is partly due to majority of these jobs being low-skilled hence low wages with limited opportunities to gain skills to work in other occupations. However, due to the nature of the data from StatsSA, many jobs are grouped together which further limits detail regarding the actual earnings data per job.

Given that the pathways are varied amongst the top 20 occupations, it is recommended that Harambee groups the jobs into three groups:

Constrained transition potential occupations: Jobs that offer limited or no opportunities to transition into higher paying occupations. Jobs within this group include: waiters/waitresses, hairdressers/barbers, cleaners, cooks, domestic workers and farm labourers. For this group of young people, the interventions required would be re-skilling in order to move into higher earning occupations.

Limited transition potential: Increase in earnings is possible based on their current skills and tasks performed. These include occupations such as drivers, construction workers, plumbers, security guards, motor vehicle mechanics, office

clerks, retail salespersons and cashiers. Here interventions can support young people to better understand the skills and tasks they are performing in their current occupation, while also focusing on skills development as their current occupations become digitised.

Good transition potential: These are jobs that present an opportunity for higher earnings and career progressions. These jobs include: data capturers, computer network specialists, switchboard operator/call centre agents, receptionists, primary school associates. Here support can be provided to help young people understand their current skills set and tasks they perform, by providing young people with suggestions on occupations they could transition too as well as engaging employers to understand the skills that young people are building should be the focus.

Figure 15: Classification of youth employed by occupational transition potential, occupation and number employed

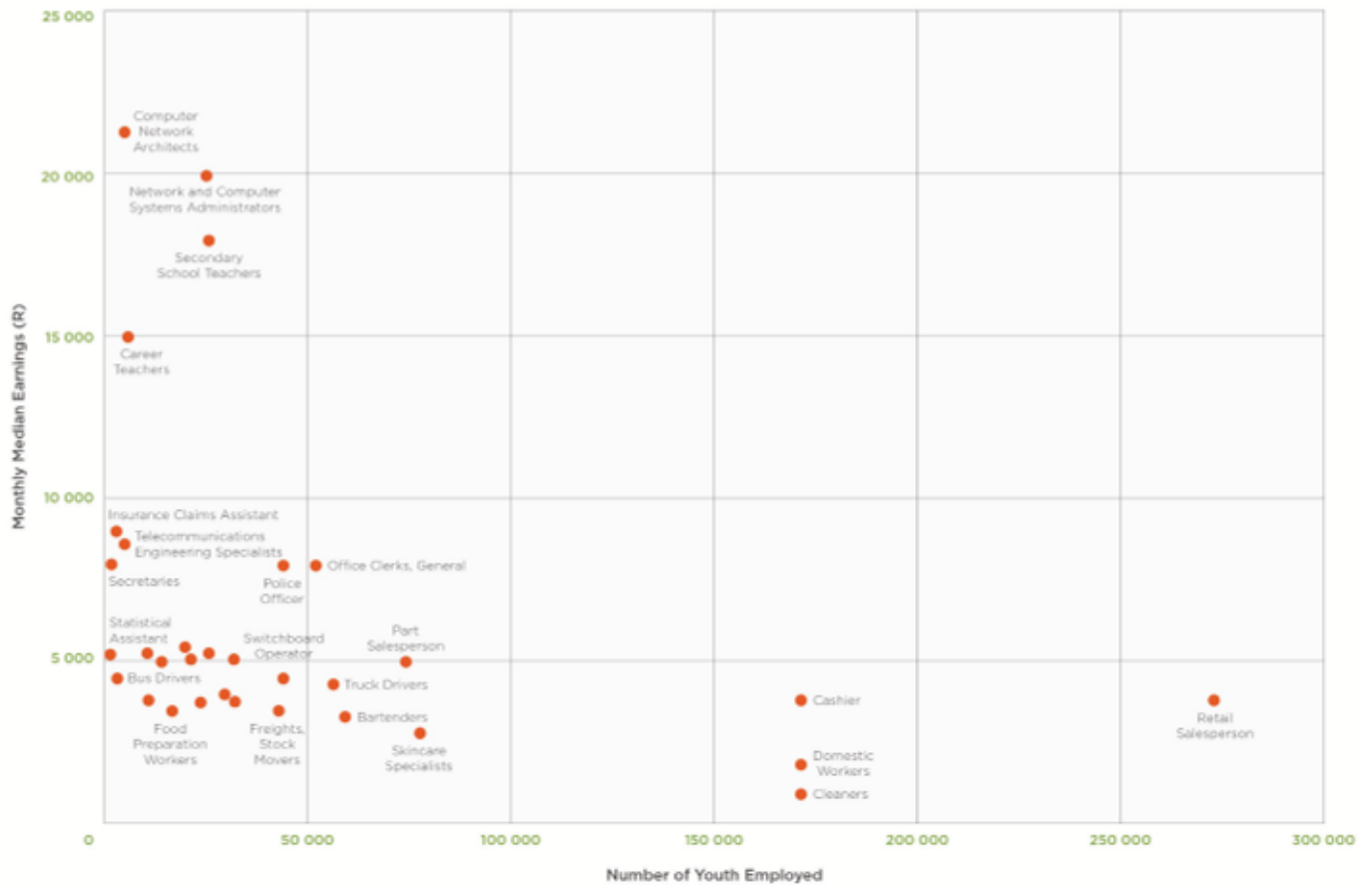
Defined grouping of occupational transition potential	Occupations in this group	Number of Youth currently employed in group
Constrained transition potential occupations	Waiters/Waitresses, Hairdressers/Barbers, Cleaners, Cooks, Domestic Workers and Farm Labourers	978, 000
Limited transition potential	Drivers, Building Labourers, Plumbers, Security Guards, Motor Vehicle Mechanics, Office Clerks, Retail Salespersons, Hand packers and Cashiers	1, 405, 000
Good Transition Potential	Data Capturers, Computer Network Specialists, Switchboard Operator/Call Centre Agents, Receptionists, Primary School Associates	160, 000

Source: Own calculations, Stats SA, QLFS, Q1-Q3 2020.

Using Stats SA data, the figure below shows the monthly median earnings for occupations which are recommended based on the tasks undertaken by young people when they are employed in one of the top 20 occupations in the South African labour

market. The majority of occupations have median monthly earnings less than R10 000, with a clustering of occupations around or below the R5 000 per month earnings level.

Figure 16: Median Monthly Earnings of Recommended Jobs



Source: Stats SA, QLFS, Q1-Q3 2020, LMD 2019, earnings based on median earnings.



5. RECOMMENDATIONS FOR FACILITATING YOUTH LABOUR TRANSITIONS



5.1. HOW CAN HARAMBEE TAKE THIS FORWARD?

As the pathway manager, Harambee has established relationships with a large number of stakeholders in the youth employment ecosystem. The recommendations below are proposed to strengthen the processes with regards to data collection and service offering.

5.1.1. Data accuracy and depth

- **Refine data collection tools to gather more precise data in terms of how respondents define their occupation.** Providing guidelines for describing one's occupation and daily tasks will lead to more detailed occupational data. In addition, collecting industry-based information will help with future skills/tasks mapping exercises.
- **Engage youth in interviews and/or focus group discussions to collect and validate information on the tasks they carry out in an occupation.** We propose undertaking this for the occupations which employ the largest number of youth. The data can be used to build a tasks database for specific occupations from which individuals can select the tasks they think are most relevant.
- **Work with data agencies to ensure more information is gathered on geographic distribution, especially lower-level geographical level.** The data available limits the understanding of where youth are working and where these industries are based. Advocating for micro-level data will assist in identifying what different interventions need to be enforced in the various provinces and industries.
- **Continue to collect earnings data.** Earnings data will provide insights into which occupations and occupational transitions offer higher earnings potential. In addition, given the limitations of earnings data from official surveys such as small sample sizes for certain occupations leading to large variations, Harambee data can complement this data.
- **Advocate for Stats SA to update the SASCO to better identify the current structure of the South African labour market in particular related to fast growing occupations in the digital sector, and greater disaggregation.** For example, call centre agents are difficult to identify based on the current classifications. However, this is an occupation of interest giving it potential to provide employment opportunities, and has been noted as a national priority sector.

Recommendation for Stats SA	Role for Harambee to support
Update the SASCO coding system to reflect the current state of the labour market and better respond to future changes in terms of new occupations. For example, including digital jobs.	Workshop with Stats SA to provide recommendations on how to improve the capturing of occupational data.
Engagement with policy makers to present a case for funding to conduct data updates.	Capacities developed through education or experience that help you perform your job, such as "reading comprehension.
Work on aligning OFO and QLFS occupational categories.	Facilitate engagement between Stats SA and the Department of Higher Education in light of the need for improved skills planning for South Africa.

5.1.2. Youth segmentation

- Identify the skills gaps amongst different youth in the labour market. The focus of this research has been on employed youth who are building skills within their current occupations and the possible occupational transitions. However, this research can also point to interventions which can be used to identify the skills gaps for youth who are currently unemployed. For this group, providing information on potential occupational transitions can be used to influence their personal strategy to training and skills development. Harambee can thus support young people to identify the "transferable" skills they have, determine how to close the skills gap, and assist in matching young people to occupations with similar skills and higher earnings.
- Segment youth interventions based on the STARs report¹⁰ approach. Similar to this report segments which segment's youth into: Shining STARs; Rising STARs; Forming STARs (i.e., people who are in high wage paying jobs; people who have the skills to transition into higher wage jobs; people who have skills but can only see a slight increase in wages). We have identified three groups of young people constrained, limited and good occupational transition potential. Harambee could use this approach to strategize on how best to approach the occupational transitions based on the employment status of the various youth they engage with, and also to advocate within the broader labour ecosystem. This would be particularly valuable given the number of young people in South Africa that are 'under-employed', which could unclog some of the blockages to get more young people into productive employment.



¹⁰ STARs Report (2020), <https://opportunityatwork.org/wp-content/uploads/2020/03/Opportunity-At-Work-Report-Reach-for-the-STARs-FINAL.pdf>

5.2. HOW CAN EMPLOYERS AND INDUSTRY BODIES MAKE CHANGES?



Recommendation for Stats SA	Role for Harambee to support
Provide greater transparency on the skills and tasks requirements for entry level occupations. Work with industry players such as the SETAs to discuss the validity of transitions.	Facilitate discussions between employers in key industries and with key industry bodies to align O*NET mapping with the occupational transitions which are occurring in an industry. In the longer term, build on the OFO to develop a O*NET database for South Africa.
Explore the possibility of looking at candidates beyond formal qualifications and consider skills learnt within the workplace.	Present data and research to employers and industry bodies on the growing importance of focusing on skills developed in the workplace to help inform hiring practices in industries that are key for economic growth.
Industry bodies to support cohort transitions by informing employers about the skills developed by young people in certain occupations.	Engage with industry to determine what skills young people are actually developing in an occupation.
Language about skills and occupations is often determined by the industry and is not familiar to young people. Industry bodies and employers can adjust language to be more easily understood.	Engage with the various ecosystem stakeholders and support the transition to more “youth friendly” language for greater inclusivity.

5.3. WHAT OTHER RESEARCH IS NEEDED?

While valuable insights were found regarding occupational transitions, the following is recommended for further research:

- **Further research can be undertaken by investigating the European Commission's Skills, Competencies, Qualifications and Occupations framework (ESCO).** ESCO provides a similar ontology to ONET, in which occupations are linked to skills. One difference between the frameworks is that ESCO's 'Skills' are verb-phrases (e.g., "greet guests" as a skill for a receptionist) which are most similar to what ONET calls tasks or work activities.
- **Understand the cost-benefit of undertaking an occupational transition.** While some occupations may provide a greater earnings potential, the costs involved in identifying and achieving such a transition may be prohibitive. The asymmetry in information regarding the geographical location of where the job growth will take place relative to where youth are currently residing and/or employed could impact the cost-benefit of the transition.
- **Additional research on the future of the labour market is required.** Once the COVID-19 pandemic passes, there will be changes in how businesses operate with more occupations moving online or companies reducing their workforce. The digital economy has large job creation potential, it is estimated that the sector can create 1 million new jobs over the next 10 years, comprising of a mix of formal jobs and new forms of income-generating work in the gig economy which can provide work for South Africans across a range of skills. It is thus key that data be collected which helps to understand this dynamic and rapidly changing sector to a greater extent. As mentioned above, a key element to this is the updating of the SASCO used by Stats SA to better track the labour market developments in these sectors.
- **There is a need to understand skills and tasks for labour market entrants and those within the labour market more broadly. Young people do have skills to perform entry level occupations and with workplace experience, additional skills can be built.** It is important to note that the indications are suggesting that many occupations will be digital and/or require more computer related skills and further academic qualifications. Given that majority of the youth in the labour market are employed in service occupations and have a Matric qualification. It is important to understand what the gaps are in order to ensure youth can remain competitive in the labour market.



6. APPENDIX 1: ONET SKILLS MAPPING

Box 3: O*NET Skills and Tasks Mapping Process

- Step 1:** Insert job keyword or code into Occupation Quick Search tab.
- Step 2:** Select relevant job from the list provided.
- Step 3:** Select the Detail report view from the view options.
- Step 4:** Download relevant information relating to the study. These include: Skills, Tasks, Median Income and Related Occupations.
- Step 5:** Draw up a table that compares these elements across occupations.

O*NET OnLine Occupation Quick Search:

Help Find Occupations Advanced Search Crosswalks Share O*NET Sites

Updated 2021

Details Report for: 43-9021.00 - Data Entry Keyers

Operate data entry device, such as keyboard or data composing perforator. Duties may include verifying data and preparing materials for printing.

Sample of reported job titles: Data Capture Specialist, Data Entry Clerk, Data Entry Machine Operator, Data Entry Operator, Data Entry Specialist, Data Transcriber, Records Clerk, Underwriting Support Specialist

View report: **Summary** **Details** Custom Easy Read Veterans Español

Tasks | Technology Skills | Tools Used | Knowledge | Skills | Abilities | Work Activities | Detailed Work Activities | Work Context | Job Zone | Education | Credentials | Interests | Work Styles | Work Values | Related Occupations | Wages & Employment | Job Openings | Additional Information

Tasks

Save Table (XLS/CSV)

All 9 displayed (0 important)

Importance	Category	Task
96	Core	Locate and correct data entry errors, or report them to supervisors.
93	Core	Compile, sort, and verify the accuracy of data before it is entered.
89	Core	Compare data with source documents, or re-enter data in verification format to detect errors.
85	Core	Store completed documents in appropriate locations.
85	Core	Select materials needed to complete work assignments.
88	Supplemental	Read source documents such as canceled checks, sales reports, or bills, and enter data in specific data fields or onto tapes or disks for subsequent entry, using keyboards or scanners.
80	Supplemental	Maintain logs of activities and completed work.
63	Supplemental	Load machines with required input or output media, such as paper, cards, disks, tape, or Braille media.
60	Supplemental	Resolve garbled or indecipherable messages, using cryptographic procedures and equipment.

Find occupations related to multiple tasks

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Technology Skills

Save Table (XLS/CSV)

10 of 12 displayed

- Accounting software — Intuit QuickBooks ; Sage 50 Accounting

Knowledge [Save Table \(XLS/CSV\)](#)

10 of 33 displayed (4 important)

Importance Knowledge

94	4	English Language	— Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
89		Clerical	— Knowledge of administrative and clerical procedures and systems such as word processing, managing files and records, stenography and transcription, designing forms, and other office procedures and terminology.
65		Customer and Personal Service	— Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
64		Law and Government	— Knowledge of laws, legal codes, court procedures, precedents, government regulations, executive orders, agency rules, and the democratic political process.
48		Public Safety and Security	— Knowledge of relevant equipment, policies, procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
47		Mathematics	— Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
45		Computers and Electronics	— Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
43		Administration and Management	— Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
42		Education and Training	— Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.
37		Economics and Accounting	— Knowledge of economic and accounting principles and practices, the financial markets, banking and the analysis and reporting of financial data.

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Skills [Save Table \(XLS/CSV\)](#)

10 of 25 displayed (5 important)

Importance Skill

66	4	Reading Comprehension	— Understanding written sentences and paragraphs in work related documents.
60		Active Listening	— Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
56		Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.	
50		Time Management	— Managing one's own time and the time of others.
50		Writing	— Communicating effectively in writing as appropriate for the needs of the audience.
47		Complex Problem Solving	— Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
47		Critical Thinking	— Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
47		Speaking	— Talking to others to convey information effectively.
44		Active Learning	— Understanding the implications of new information for both current and future problem-solving and decision-making.

Related Occupations [Save Table \(XLS/CSV\)](#)

All 9 displayed

43-3051.00	Payroll and Timekeeping Clerks
43-3071.00	Tellers
43-4031.00	Court, Municipal, and License Clerks
43-4081.00	Hotel, Motel, and Resort Desk Clerks
43-4171.00	Receptionists and Information Clerks
43-6014.00	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive
43-9022.00	Word Processors and Typists
43-9041.00	Insurance Claims and Policy Processing Clerks
43-9061.00	Office Clerks, General ● Bright Outlook

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Wages & Employment Trends

Median wages (2020) \$16.56 hourly, \$34,440 annual

State wages

Local wages ZIP Code:

Employment (2019) 172,400 employees

Projected growth (2019-2029) ■ Decline (-1% or lower)

Projected job openings (2019-2029) 10,900

State trends

Top industries (2019) [Administrative and Support Services](#) (18% employed in this sector)
[Professional, Scientific, and Technical Services](#) (15%)
[\(see all industries\)](#)

7. APPENDIX 2: O*NET DEFINITIONS

Table 4: O*NET definitions

Element	Description
Tasks	Work activities that are specific to each occupation
Technology Skills & Tools	Machines, equipment, tools, and software that workers may use for successful performance on the job
Knowledge	Organized sets of principles and facts that apply to a wide range of situations, such as knowledge of "mathematics," "chemistry," or "fine arts." Knowledge helps clarify the need for certain skills
Skills	Capacities developed through education or experience that help you perform your job, such as "reading comprehension"
Work Activities	Tasks that may be performed across multiple occupations
Related Occupations	Occupations similar to the selected occupation in required knowledge areas, skills, abilities, work environment, and work activities
Job Zones	Job Zones group occupations into one of five categories based on levels of education, experience, and training necessary to perform the occupation.

8. APPENDIX 3: O*NET SCORING METHODOLOGY

Box 4: Details on the O*NET Scoring Methodology

- Occupational analysts provide the importance and level information regarding the abilities and skills associated with occupations. 16 Occupational analysts were selected as skills raters. The skills and tasks are scored from 0-100.
- Skills are proficiencies that are developed through training or experience. The 35 skills in the O*NET database are grouped into seven categories: content, process, social, complex problem solving, technical, systems, and resource management.
- The information received by occupational raters include:
 - Title and definition of the occupation
 - Job zone of the occupation (i.e., level of vocational preparation needed)
 - Mean importance of core and supplementary tasks for the targeted occupation
 - Mean importance of knowledge domains, where mean importance is > 3.0
 - Mean importance of Generalized Work Activities (GWAs) that (1) have a mean importance for the occupation > 3.0, and (2) require the targeted skill to be performed
 - Mean rating of Work Context (WC) statements that (1) have a mean rating for the targeted occupation > 3.0, and (2) require the targeted skill to work in that context
- This approach is not the most intuitive to understand thus we proposed identifying the top 10 skills across occupations (all skills rated above 50 in the ONET).

9. APPENDIX 4: RELATED OCCUPATIONS BASED ON TASK MAPPING

Table 5: Related occupational for the top 20 occupations based the core tasks for current occupation

Top 20 Jobs	Recommended Transitions
Farmhands and labourers	Agricultural Equipment Operators (7); Farmworkers, Farm, Ranch, and Aquacultural Animals (7)
Retail Salespersons	Part Salesperson (14); Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products (12); Demonstrators and Product Promoters (11); Cashiers (9); Counter and Rental Clerks (9)
Hand Packers & Manufacturing Labourers	Conveyor Operators and Tenders (6); Laborers and Freight, Stock, and Material Movers, Hand (6); Transportation Inspectors (5); Machine Feeders and Off bearers (5);
Cashier	Part Salesperson (8); Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products (7); Retail Salesperson (6); First-Line Supervisors of Retail Sales Workers (6); Counter and Rental Clerks (5)
Data Capturer	Tellers (9); Insurance Claims and Policy Processing Clerks (8); Word Processor and Typist (7); Statistical Assistants (7); File Clerk (7)
Security Guards	Police and Sheriff's Patrol Officers (8); Transportation Security Screeners; Bailiffs (5); First-Line Supervisors of Security Workers (5)
Office clerk	Word Processor and Typist (10); Secretaries and Administrative Assistants, Except Legal, Medical and Executive (10); File Clerk (9); First-Line Supervisors of Office and Administrative Support Workers (9); Bookkeeping, Accounting, and Auditing Clerks (7)
Cleaners/Labourers/Sweepers	Maids and Housekeeping Cleaners (14); First-Line Supervisors of Housekeeping and Janitorial Workers (6)
Drivers	Automotive and Watercraft Service Attendants (9); Heavy and Tractor-Trailer Truck Drivers (9); Flight Attendants (7); Bus Drivers, Transit and Intercity (6); Light Truck Drivers (6)
Building Labourers	Septic Tank Servicers and Sewer Pipe Cleaners (8); Segmental Pavers (7); Operating Engineers and Other Construction Equipment Operators (7); Helpers-Pipelayers, Plumbers, Pipefitters, and Steamfitters (6); Roustabouts, Oil and Gas (6)
Primary School Associates	Teaching Assistants, Special Education (8); Career/Technical Education Teachers, Middle School (6); Secondary School Teachers, Except Special and Career/Technical Education (6); Career/Technical Education Teachers, Secondary School (6); Preschool Teachers, Except Special Education (6)
Waiter/Waitress	Fast Food and Counter Workers (19); Food Preparation Workers (13); Cooks, Fast Food (13); Dining Room and Cafeteria Attendants and Bartender Helpers (12); Bartenders (12)
Plumber	Sheet Metal Workers (14); Boilermakers (10); Helpers-Pipelayers, Plumbers, Pipefitters, and Steamfitters (6); Carpenters (9); First-Line Supervisors of Construction Trades and Extraction Workers (8)
Receptionists	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive (10); Office Clerks, General (9); Switchboard Operator (8); Medical Secretaries and Administrative Assistants (7); Tellers (7)
Switchboard Operator/Call Centre Agent	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive (8); Telephone Operators (7); Office Clerks, General (6); Tellers (6); Proof Readers and Copy Markers (5)
Domestic Workers	Janitors and Cleaners (11);
Cooks	Food Preparation Workers (18); Cooks, Fast Food (16); Cooks, Institution and Cafeteria (11); Fast Food and Counter Workers (10); First-Line Supervisors of Food Preparation and Serving Workers (10)
Motor Vehicle Mechanics	Bus and Truck Mechanics and Diesel Engine Specialists; Aircraft Mechanics and Service Technicians (14); Musical Instrument Repairers and Tuners (13); Rail Car Repairers (14); Electric Motor, Power Tool, and Related Repairers (11)
(Entry Level) Analyst	No data in ONET, need to specify industry
Hairdresser	Skincare Specialists (13); Barbers (13); Makeup Artists, Theatrical and Performance (7); Manicurists and Pedicurists (5); Animal Caretakers (5)
Barber	Skincare Specialists (12); Hairdressers, Hairstylists, and Cosmetologists (11); Morticians, Undertakers, and Funeral Arrangers (7); Funeral Attendants (6); Animal Caretakers (5)
Computer Network Specialists	Network and Computer Systems Administrators (15); Telecommunications Engineering Specialists (13); Computer Network Architects (12);

Source: The O*NET Database.

Note: the number in brackets refer to the number of tasks aligned with the selected occupation.

APPENDIX 5: AN APPROACH TO OCCUPATIONAL MAPPING BASED ON A TASK BASKET

An approach for mapping skills and tasks to support occupational transitions for young people: **Related Occupations**

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Farmhands & Labourers	2 600	Agricultural Equipment Operators (Farm Equipment Operator)	7	<ul style="list-style-type: none"> • Load and unload crops or containers of materials, manually or using conveyors, hand-trucks, forklifts, or transfer augers. • Mix specified materials or chemicals, and dump solutions, powders, or seeds into planter or sprayer machinery. • Spray fertilizer or pesticide solutions to control insects, fungus and weed growth, and diseases, using hand sprayers. • Observe and listen to machinery operation to detect equipment malfunctions. • Manipulate controls to set, activate, and adjust mechanisms on machinery. 	<ul style="list-style-type: none"> • Operation and Control • Operations Monitoring • Troubleshooting • Active Listening • Equipment Maintenance 	11 000	3 800	Constrained transition potential
Retail Salesperson**	3 800	Part Salesperson	14	<ul style="list-style-type: none"> • Receive and fill telephone orders for parts. • Fill customer orders from stock, and place orders when requested items are out of stock. • Receive payment or obtain credit authorisation. • Read catalogs, microfiche viewers, or computer displays to determine replacement part stock numbers and prices. • Prepare sales slips or sales contracts. 	<ul style="list-style-type: none"> • Active Listening • Speaking • Reading Comprehension • Service Orientation • Persuasion 	32 000	5100	Limited transition potential
		Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	12	<ul style="list-style-type: none"> • Negotiate prices or terms of sales or service agreements. • Prepare and submit sales contracts for orders. • Visit establishments to evaluate needs or to promote product or service sales. • Maintain customer records, using automated systems. • Answer customers' questions about products, prices, availability, or credit terms. 	<ul style="list-style-type: none"> • Persuasion • Speaking • Active Listening • Negotiation • Social Perceptiveness 	32 000	3800	
		Demonstrators and Product Promoters	11	<ul style="list-style-type: none"> • Provide product samples, coupons, informational brochures, or other incentives to persuade people to buy products. • Sell products being promoted and keep records of sales. • Keep areas neat while working and return items to correct locations following demonstrations. • Demonstrate or explain products, methods, or services to persuade customers to purchase products or use services. • Record and report demonstration-related information, such as the number of questions asked by the audience or the number of coupons distributed. 	<ul style="list-style-type: none"> • Active Listening • Speaking • Persuasion • Reading Comprehension • Service Orientation 	274 000	3 800	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Retail Salesperson** (cont)		Cashiers	9	<ul style="list-style-type: none"> Establish or identify prices of goods, services, or admission, and tabulate bills, using calculators, cash registers, or optical price scanners. Answer incoming phone calls. Bag, box, wrap, or gift-wrap merchandise, and prepare packages for shipment. Assist with duties in other areas of the store, such as monitoring fitting rooms or bagging and carrying out customers' items. Stock shelves, sort and reshelve returned items, and mark prices on items and shelves. Compute charges for merchandise or services and receive payments. Receive orders for services, such as rentals, repairs, dry cleaning, and storage. Explain rental fees, policies, and procedures. Provide information about rental items, such as availability, operation, or description. Advise customers on use and care of merchandise. 	<ul style="list-style-type: none"> Service Orientation Active Listening Speaking Mathematics Social Perceptiveness Coordination 	172 000	3 800	
Hand Packers & Manufacturing Labourers**	3 250	Conveyor Operators and Tenders Labourers and Freight, Stock, and Material Movers, Hand	6	<ul style="list-style-type: none"> Inform supervisors of equipment malfunctions that need to be addressed. Observe conveyor operations and monitor lights, dials, and gauges to maintain specified operating levels and to detect equipment malfunctions. Record production data such as weights, types, quantities, and storage locations of materials, as well as equipment performance problems and downtime. Load, unload, or adjust materials or products on conveyors by hand, by using lifts, hoists, and scoops, or by opening gates, chutes, or hoppers. Stop equipment or machinery and clear jams, using poles, bars, and hand tools, or remove damaged materials from conveyors. Move freight, stock, or other materials to and from storage or production areas, loading docks, delivery vehicles, ships, or containers, by hand or using trucks, tractors, or other equipment. Sort cargo before loading and unloading. Attach identifying tags to containers or mark them with identifying information. Read work orders or receive oral instructions to determine work assignments or material or equipment needs. Stack cargo in locations, such as transit sheds or in holds of ships as directed, using pallets or cargo boards. 	<ul style="list-style-type: none"> Operation and Control Operations Monitoring Monitoring Active Listening Complex Problem Solving 	N/A	5 200	Limited transition potential
			6		<ul style="list-style-type: none"> Coordination Critical Thinking Operation and Control Active Listening Operations Monitoring 	43 000	3 500	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Security Guard**	4 000	Police and Sheriff's Patrol Officers	8	<ul style="list-style-type: none"> Identify, pursue, and arrest suspects and perpetrators of criminal acts. Provide for public safety by maintaining order, responding to emergencies, protecting people and property, enforcing motor vehicle and criminal laws, and promoting good community relations. Record facts to prepare reports that document incidents and activities. Render aid to accident victims and other persons requiring first aid for physical injuries. Investigate illegal or suspicious activities. 	<ul style="list-style-type: none"> Active Listening Critical Thinking Speaking Social Perceptiveness Negotiation 	44 000	8 000	Limited transition potential
Office Clerk	5 000	Secretaries and Administrative Assistants, Except Legal, Medical and Executive	10	<ul style="list-style-type: none"> Answer telephones and give information to callers, take messages, or transfer calls to appropriate individuals. Greet visitors or callers and handle their inquiries or direct them to the appropriate persons according to their needs. Create, maintain, and enter information into databases. Use computers for various applications, such as database management or word processing. Operate office equipment, such as fax machines, copiers, or phone systems and arrange for repairs when equipment malfunctions. 	<ul style="list-style-type: none"> Active Listening Speaking Reading Comprehension Writing Service Orientation 	1 000	8 000	Limited transition potential
		File Clerk	9	<ul style="list-style-type: none"> Scan or read incoming materials to determine how and where they should be classified or filed. Input data, such as file numbers, new or updated information, or document information codes into computer systems to support document and information retrieval. Perform general office activities, such as typing, answering telephones, operating office machines, processing mail, or securing confidential materials. Sort or classify information according to guidelines, such as content, purpose, user criteria, or chronological, alphabetical, or numerical order. Answer questions about records or files. 	<ul style="list-style-type: none"> Reading Comprehension Active Listening Critical Thinking Monitoring Service Orientation 	No occupational code available		
		Bookkeeping, Accounting, and Auditing Clerks	7	<ul style="list-style-type: none"> Operate computers programmed with accounting software to record, store, and analyse information. Check figures, postings, and documents for correct entry, mathematical accuracy, and proper codes. Comply with federal, state, and company policies, procedures, and regulations. Operate 10-key calculators, typewriters, and copy machines to perform calculations and produce documents. Receive, record, and bank cash, cheques, and vouchers. 	<ul style="list-style-type: none"> Mathematics Active Listening Critical Thinking Reading Comprehension Speaking 	20 000	5 500	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Domestic Workers**	1 800	Janitors and Cleaners	11	<ul style="list-style-type: none"> Service, clean, or supply rest rooms. Clean building floors by sweeping, mopping, scrubbing, or vacuuming. Gather and empty trash. Follow procedures for the use of chemical cleaners and power equipment to prevent damage to floors and fixtures. Mix water and detergents or acids in containers to prepare cleaning solutions, according to specifications. 	<ul style="list-style-type: none"> Active Listening Coordination Critical Thinking Social Perceptiveness Speaking 	172 000	1 000	Constrained transition potential
Cashiers**	3 800	Part Salesperson	8	<ul style="list-style-type: none"> Receive and fill telephone orders for parts. Fill customer orders from stock, and place orders when requested items are out of stock. Receive payment or obtain credit authorisation. Read catalogues, microfiche viewers, or computer displays to determine replacement part stock numbers and prices. Prepare sales slips or sales contracts 	<ul style="list-style-type: none"> Active Listening Speaking Reading Comprehension Service Orientation Persuasion 	32 000	5 100	Limited transition potential
		Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	7	<ul style="list-style-type: none"> Negotiate prices or terms of sales or service agreements. Prepare and submit sales contracts for orders. Visit establishments to evaluate needs or to promote product or service sales. Maintain customer records, using automated systems. Answer customers' questions about products, prices, availability, or credit terms. 	<ul style="list-style-type: none"> Persuasion Speaking Active Listening Negotiation Social Perceptiveness 	32 000	3 800	
		Retail Salesperson	6	<ul style="list-style-type: none"> Greet customers and ascertain what each customer wants or needs. Recommend, select, and help locate or obtain merchandise based on customer needs and desires. Compute sales prices, total purchases, and receive and process cash or credit payment. Prepare merchandise for purchase or rental. Answer questions regarding the store and its merchandise. 	<ul style="list-style-type: none"> Persuasion Active Listening Service Orientation Speaking Negotiation 	274 000	3 800	
Cooks	2 600	Food Preparation Workers	18	<ul style="list-style-type: none"> Take and record temperature of food and food storage areas, such as refrigerators and freezers. Prepare a variety of foods, such as meats, vegetables, or desserts, according to customers' orders or supervisors' instructions, following approved procedures. Place food trays over food warmers for immediate service, or store them in refrigerated storage cabinets. Package take-out foods or serve food to customers. Stock cupboards and refrigerators, and tend salad bars and buffet meals. 	<ul style="list-style-type: none"> Active Listening Coordination Service Orientation Social Perceptiveness Speaking 	17 000	3 505	Constrained transition potential

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Drivers**	3 254	Heavy and Tractor-Trailer Truck Drivers	9	<ul style="list-style-type: none"> Check vehicles to ensure that mechanical, safety, and emergency equipment is in good working order. Follow appropriate safety procedures for transporting dangerous goods. Inspect loads to ensure that cargo is secure. Maintain logs of working hours or of vehicle service or repair status, following applicable state and federal regulations. Secure cargo for transport, using ropes, blocks, chain, binders, or covers. 	<ul style="list-style-type: none"> Operation and Control Operations Monitoring Time Management Critical Thinking Monitoring 	57 000	4 316	Limited transition potential
		Bus Drivers, Transit and Intercity	6	<ul style="list-style-type: none"> Drive vehicles over specified routes or to specified destinations according to time schedules, complying with traffic regulations to ensure that passengers have a smooth and safe ride. Park vehicles at loading areas so that passengers can board. Inspect vehicles and check gas, oil, and water levels prior to departure. Announce stops to passengers. Assist passengers, such as elderly or disabled individuals, on and off bus, ensure they are seated properly, help carry baggage, and answer questions about bus schedules or routes. 	<ul style="list-style-type: none"> Operation and Control Operations Monitoring Active Listening Critical Thinking Service Orientation 	3 000	4 500	
Building Labourers	3 250	Light Truck Drivers	6	<ul style="list-style-type: none"> Drive vehicles with capacities under three tons to transport materials to and from specified destinations, such as railroad stations, plants, residences, offices, or within industrial yards. Verify the contents of inventory loads against shipping papers. Read maps and follow written or verbal geographic directions. Turn in receipts and money received from deliveries. Inspect and maintain vehicle supplies and equipment, such as gas, oil, water, tires, lights, or brakes, to ensure that vehicles are in proper working condition. 	<ul style="list-style-type: none"> Operation and Control Active Listening Speaking Monitoring Reading Comprehension 	57 000	4 316	Limited transition potential
		Helpers - Pipe-layers, Plumbers, Pipe-fitters, and Steam-fitters	6	<ul style="list-style-type: none"> Measure, cut, thread and assemble new pipe, placing the assembled pipe in hangers or other supports. Cut or drill holes in walls or floors to accommodate the passage of pipes. Perform rough-ins, repair and replace fixtures and water heaters, and locate, repair, or remove leaking or broken pipes. Assist pipe fitters in the layout, assembly, and installation of piping for air, ammonia, gas, and water systems. Cut pipe and lift up to fitters. 	<ul style="list-style-type: none"> Active Listening Critical Thinking Judgment and Decision Making Monitoring Coordination 	30 000	4 000	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Hairdressers/Barbers	2 800	Skincare Specialists	13	<ul style="list-style-type: none"> • Sterilize equipment and clean work areas. • Examine clients' skin, using magnifying lamps or visors when necessary, to evaluate skin condition and appearance. • Cleanse clients' skin with water, creams, or lotions. • Demonstrate how to clean and care for skin properly and recommend skin-care regimens. • Select and apply cosmetic products, such as creams, lotions, and tonics. • Clean and sanitize tools and work environment. • Apply undercoat and clear or coloured polish onto nails with brush. • Maintain supply inventories and records of client services. • Shape and smooth ends of nails, using scissors, files, or emery boards. • Prepare nail cuticles with water and oil, using cuticle knives to push back cuticles and scissors or nippers to trim cuticles. 	<ul style="list-style-type: none"> • Speaking • Active Listening • Service Orientation • Active Learning • Reading Comprehension 	78 000	2800	Constrained transition potential
Motor Vehicle Mechanics	5 000	Bus and Truck Mechanics and Diesel Engine Specialists	17	<ul style="list-style-type: none"> • Inspect brake systems, steering mechanisms, wheel bearings, and other important parts to ensure that they are in proper operating condition. • Use hand-tools, such as screwdrivers, pliers, wrenches, pressure gauges, or precision instruments, as well as power tools, such as pneumatic wrenches, lathes, welding equipment, or jacks and hoists. • Adjust and realign brakes, align wheels, tighten bolts and screws, and reassemble equipment. • Examine and adjust protective guards, loose bolts, and specified safety devices. • Perform routine maintenance such as changing oil, checking batteries, and lubricating equipment and machinery. 	<ul style="list-style-type: none"> • Repairing • Troubleshooting • Operation and Control • Operations Monitoring • Critical Thinking 	75 000	5000	Limited transition potential
		Electric Motor, Power Tool, and Related Repairs (Motor Vehicle Electrician)	11	<ul style="list-style-type: none"> • Inspect and test equipment to locate damage or worn parts and diagnose malfunctions, or read work orders or schematic drawings to determine required repairs. • Reassemble repaired electric motors to specified requirements and ratings, using hand tools and electrical meters. 	<ul style="list-style-type: none"> • Repairing • Equipment Maintenance • Troubleshooting • Critical Thinking • Equipment Selection 	14 000	5000	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Cleaners/ Labourers/ Sweepers	1 235	Maids and Housekeeping Cleaners (Domestic Workers)	14	<ul style="list-style-type: none"> Keep storage areas and carts well-stocked, clean, and tidy. Carry linens, towels, toilet items, and cleaning supplies, using wheeled carts. Clean rooms, hallways, lobbies, lounges, rest-rooms, corridors, elevators, stairways, locker rooms, and other work areas so that health standards are met. Empty waste baskets, empty and clean ashtrays, and transport other trash and waste to disposal areas. Sweep, scrub, wax, or polish floors, using brooms, mops, or powered scrubbing and waxing machines. 	<ul style="list-style-type: none"> Service Orientation Coordination Time Management Social Perceptiveness Active Listening 	172 000	1 800	Constrained transition potential
Waiters/ Waitresses**	3 300	Bartenders	12	<ul style="list-style-type: none"> Clean glasses, utensils, and bar equipment. Collect money for drinks served. Balance cash receipts. Check identification of customers to verify age requirements for purchase of alcohol. Clean bars, work areas, and tables. 	<ul style="list-style-type: none"> Active Listening Service Orientation Social Perceptiveness Coordination Critical Thinking 	59 000	3 300	Constrained transition potential
Switchboard Operator/Call Centre Agent	4 500	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	8	<ul style="list-style-type: none"> Answer telephones and give information to callers, take messages, or transfer calls to appropriate individuals. Greet visitors or callers and handle their inquiries or direct them to the appropriate persons according to their needs. Create, maintain, and enter information into databases. Use computers for various applications, such as database management or word processing. Operate office equipment, such as fax machines, copiers, or phone systems and arrange for repairs when equipment malfunctions. 	<ul style="list-style-type: none"> Active Listening Speaking Reading Comprehension Writing Service Orientation 	1 000	8 000	Good transition potential
		Office Clerks, General (Information Clerk)	6	<ul style="list-style-type: none"> Operate office machines, such as photocopiers and scanners, facsimile machines, voice mail systems, and personal computers. Answer telephones, direct calls, and take messages. Communicate with customers, employees, and other individuals to answer questions, disseminate or explain information, take orders, and address complaints. Maintain and update filing, inventory, mailing, and database systems, either manually or using a computer. Compile, copy, sort, and file records of office activities, business transactions, and other activities. 	<ul style="list-style-type: none"> Active Listening Reading Comprehension Speaking Writing Coordination 	52 000	8 000	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Receptionist	4 500	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	10	<ul style="list-style-type: none"> Answer telephones and give information to callers, take messages, or transfer calls to appropriate individuals. Greet visitors or callers and handle their inquiries or direct them to the appropriate persons according to their needs. Create, maintain, and enter information into databases. Use computers for various applications, such as database management or word processing. Operate office equipment, such as fax machines, copiers, or phone systems and arrange for repairs when equipment malfunctions. 	<ul style="list-style-type: none"> Active Listening Speaking Reading Comprehension Writing Service Orientation 	1 000	8 000	Good transition potential
		Office Clerks, General (Information Clerk)	9	<ul style="list-style-type: none"> Operate office machines, such as photocopiers and scanners, facsimile machines, voice mail systems, and personal computers. Answer telephones, direct calls, and take messages. Communicate with customers, employees, and other individuals to answer questions, disseminate or explain information, take orders, and address complaints. Maintain and update filing, inventory, mailing, and database systems, either manually or using a computer. Compile, copy, sort, and file records of office activities, business transactions, and other activities. 	<ul style="list-style-type: none"> Active Listening Reading Comprehension Speaking Writing Coordination 	52 000	8 000	
		Switchboard Operator	8	<ul style="list-style-type: none"> Answer incoming calls, greeting callers, providing information, transferring calls or taking messages as necessary. Operate communication systems, such as telephone, switchboard, intercom, two-way radio, or public address. Page individuals to inform them of telephone calls, using paging or interoffice communication equipment. Relay or route written or verbal messages. Place telephone calls or arrange conference calls as instructed. 	<ul style="list-style-type: none"> Speaking Active Listening Social Perceptiveness Reading Comprehension Service Orientation 	44 000	4 500	
		Tellers	7	<ul style="list-style-type: none"> Balance currency, coin, and cheques in cash drawers at ends of shifts and calculate daily transactions, using computers, calculators, or adding machines. Receive cheques and cash for deposit, verify amounts, and check accuracy of deposit slips. Monitor bank vaults to ensure cash balances are correct. Cash cheques and pay out money after verifying that signatures are correct, that written and numerical amounts agree, and that accounts have sufficient funds. Count currency, coins, and cheques received, by hand or using currency-counting machine, to prepare them for deposit or shipment to branch banks or the Federal Reserve Bank. 	<ul style="list-style-type: none"> Active Listening Speaking Critical Thinking Monitoring Reading Comprehension 	26 000	5 250	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Plumber	3 505	Boilermaker	10	<ul style="list-style-type: none"> Install manholes, hand-holes, taps, tubes, valves, gauges, or feed-water connections in drums of water tube boilers, using hand tools. Repair or replace defective pressure vessel parts, such as safety valves or regulators, using torches, jacks, caulking hammers, power saws, threading dies, welding equipment, or metalworking machinery. Shape or fabricate parts, such as stacks, uptakes, or chutes, to adapt pressure vessels, heat exchangers, or piping to premises, using heavy-metalworking machines such as brakes, rolls, or drill presses. Attach rigging and signal crane or hoist operators to lift heavy frame and plate sections or other parts into place. Study blueprints to determine locations, relationships, or dimensions of parts. 	<ul style="list-style-type: none"> Operations Monitoring Operation and Control Critical Thinking Equipment Maintenance Quality Control Analysis 	21 000	5 100	Limited transition potential
		Helpers - Pipe-layers, Plumbers, Pipe-fitters, and Steam-fitters	6	<ul style="list-style-type: none"> Measure, cut, thread and assemble new pipe, placing the assembled pipe in hangers or other supports. Cut or drill holes in walls or floors to accommodate the passage of pipes. Perform rough-ins, repair and replace fixtures and water heaters, and locate, repair, or remove leaking or broken pipes. Assist pipe fitters in the layout, assembly, and installation of piping for air, ammonia, gas, and water systems. Cut pipe and lift up to fitters. 	<ul style="list-style-type: none"> Active Listening Critical Thinking Judgment and Decision Making Monitoring Coordination 	30 000	4 000	
		Carpenters	9	<ul style="list-style-type: none"> Follow established safety rules and regulations and maintain a safe and clean environment. Study specifications in blueprints, sketches, or building plans to prepare project layout and determine dimensions and materials required. Measure and mark cutting lines on materials, using a ruler, pencil, chalk, and marking gauge. Shape or cut materials to specified measurements, using hand tools, machines, or power saws. Install structures or fixtures, such as windows, frames, floorings, trim, or hardware, using carpenters' hand or power tools. 	<ul style="list-style-type: none"> Active Listening Monitoring Speaking Coordination Critical Thinking 	24 000	3 741	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Primary School Associate	17 000	Career/Technical Education Teachers, Middle School	6	<ul style="list-style-type: none"> Instruct students individually and in groups, using various teaching methods, such as lectures, discussions, and demonstrations. Prepare materials and classrooms for class activities. Adapt teaching methods and instructional materials to meet students' varying needs and interests. Establish and enforce rules for behaviour and procedures for maintaining order among students. Establish clear objectives for all lessons, units, and projects and communicate those objectives to students. 	<ul style="list-style-type: none"> Speaking Active Listening Instructing Learning Strategies Reading Comprehension 	6 000	15 000	Good transition potential
		Secondary School Teachers, Except Special and Career/Technical Education	6	<ul style="list-style-type: none"> Prepare materials and classrooms for class activities. Instruct through lectures, discussions, and demonstrations in one or more subjects, such as English, mathematics, or social studies. Establish clear objectives for all lessons, units, and projects and communicate those objectives to students. Establish and enforce rules for behaviour and procedures for maintaining order among students. Adapt teaching methods and instructional materials to meet students' varying needs and interests. 	<ul style="list-style-type: none"> Instructing Speaking Active Listening Learning Strategies Reading Comprehension 	26 000	18 000	
Data Capturer	6 500	Teller	9	<ul style="list-style-type: none"> Balance currency, coin, and cheques in cash drawers at ends of shifts and calculate daily transactions, using computers, calculators, or adding machines. Receive cheques and cash for deposit, verify amounts, and check accuracy of deposit slips. Monitor bank vaults to ensure cash balances are correct. Cash cheques and pay out money after verifying that signatures are correct, that written and numerical amounts agree, and that accounts have sufficient funds. Count currency, coins, and cheques received, by hand or using currency-counting machine, to prepare them for deposit or shipment to branch banks or the Federal Reserve Bank. 	<ul style="list-style-type: none"> Active Listening Speaking Critical Thinking Monitoring Reading Comprehension 	26 000	5 250	Good transition potential
		Statistical Assistant	7	<ul style="list-style-type: none"> Compute and analyse data, using statistical formulas and computers or calculators. Check source data to verify completeness and accuracy. Enter data into computers for use in analyses or reports. Compile reports, charts, or graphs that describe and interpret findings of analyses. Participate in the publication of data or information. 	<ul style="list-style-type: none"> Mathematics Critical Thinking Reading Comprehension Active Learning Complex Problem Solving 	1 000	5 250	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Data Capturer (cont)		Insurance Claims and Policy Processing Clerks (Insurance Claims Assistant)	8	<p>Top 5 Core Tasks of Related Occupation</p> <ul style="list-style-type: none"> Prepare insurance claim forms or related documents, and review them for completeness. Calculate amount of claim. Post or attach information to claim file. Transmit claims for payment or further investigation. Contact insured or other involved persons to obtain missing information. 	<ul style="list-style-type: none"> Active Listening Reading Comprehension Speaking Writing Service Orientation 	3 000	9 000	
Computer Network Specialists	21 302	Network and Computer Systems Administrators	15	<ul style="list-style-type: none"> Maintain and administer computer networks and related computing environments including computer hardware, systems software, applications software, and all configurations. Perform data backups and disaster recovery operations. Diagnose, troubleshoot, and resolve hardware, software, or other network and system problems, and replace defective components when necessary. Configure, monitor, and maintain email applications or virus protection software. Operate master consoles to monitor the performance of computer systems and networks, and to coordinate computer network access and use. 	<ul style="list-style-type: none"> Critical Thinking Judgement and Decision Making Reading Comprehension Systems Analysis Active Listening 	25 000	20 000	Good transition potential
		Telecommunications Engineering Specialists	13	<ul style="list-style-type: none"> Consult with users, administrators, and engineers to identify business and technical requirements for proposed system modifications or technology purchases. Implement system renovation projects in collaboration with technical staff, engineering consultants, installers, and vendors. Keep abreast of changes in industry practices and emerging telecommunications technology by reviewing current literature, talking with colleagues, participating in educational programs, attending meetings or workshops, or participating in professional organisations or conferences. Assess existing facilities' needs for new or modified telecommunications systems. Review and evaluate requests from engineers, managers, and technicians for system modifications. 	<ul style="list-style-type: none"> Active Listening Critical Thinking Reading Comprehension Active Learning Speaking 	5 000	8 600	

T20 Job	Median Earning	Recommended Jobs Based on Tasks	No. of Related Tasks Relative to T20 Job	Top 5 Core Tasks of Related Occupation	Top 5 Skills in Related Occupation	No. of Jobs in the Labour Market	Earnings Potential (R median monthly)	Grouping of Job
Computer Network Specialists (cont)		Computer Network Architects	12	<ul style="list-style-type: none"> Develop or recommend network security measures, such as firewalls, network security audits, or automated security probes. Develop disaster recovery plans. Monitor and analyse network performance and reports on data input or output to detect problems, identify inefficient use of computer resources, or perform capacity planning. Coordinate network or design activities with designers of associated networks. Develop conceptual, logical, or physical network designs. 	<ul style="list-style-type: none"> Critical Thinking Active Listening Complex Problem Solving Reading Comprehension Judgement and Decision Making 	5 000	21 301	

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