



NEW AND EMERGING OCCUPATIONS IN THE BANKING AND ALTERNATIVE BANKING SECTOR

Final Report



ACRONYMS AND ABBREVIATIONS

| | |
|----------|---|
| 4IR | Fourth Industrial Revolution |
| AI | Artificial Intelligence |
| API | Application Programming Interface |
| APT | Advanced Persistent Threat |
| BANKSETA | Banking Sector Education and Training Authority |
| CET | Community Education and Training |
| CFI | Co-operative Finance Institutions |
| CIA | Confidentiality, Integrity and Availability |
| CISA | Cyber Security and Infrastructure Security Agency |
| DFI | Development Finance Institutions |
| DHET | Department of Higher Education and Training |
| FIC | Financial Intelligence Centre |
| Fintech | Financial Technology |
| FSAP | Financial Sector Assessment Program |
| FSCA | Financial Sector Conduct Authority |
| HEIs | Higher Education Institutions |
| HTFV | Hard to Fill Vacancies |
| HRD | Human Resource Development |
| ICT | Information and Communication Technology |
| IDC | Industrial Development Corporations |
| IFWG | Intergovernmental FinTech Working Group |
| IMF | International Monetary Fund |
| IoT | Internet of Things |
| KSAs | Knowledge, Skills, and Abilities |
| NATED | National Accredited Technical Education Diploma |
| NCR | National Credit Regulator |
| PSET | Post-School Education and Training |
| SARS | South African Revenue Service |
| SETA | Sector Education and Training Authority |
| SMME | Small Micro Medium Enterprises |
| SSP | Sector Skills Plan |
| SGs | Skills Gaps |
| SAQA | South African Qualifications Authority |
| SARB | South African Reserve Bank |
| StatsSA | Statistics South Africa |
| STEM | Science, Technology, Engineering & Mathematics |
| TVET | Technical and Vocational Education and Training |
| VUCA | Volatile, Uncertain, Complex and Ambiguous |
| WEF | World Economic Forum |
| WSP | Workplace Skills Plan |

TABLE OF CONTENTS

| | |
|---|----|
| Acronyms and abbreviations | 1 |
| 1 Introduction | 4 |
| 1.1 Purpose of study | 5 |
| 2 Background | 6 |
| 2.1 The banking and alternative banking sector..... | 6 |
| 2.2 Structure of report..... | 8 |
| 3 Methodology..... | 10 |
| 3.1 Literature review..... | 10 |
| 3.2 Conducting a Survey | 10 |
| 3.3 Conducting Interviews | 11 |
| 3.4 Consolidation of findings and writing of draft report..... | 12 |
| 3.5 Limitations..... | 12 |
| 4 International trends in the banking and alternative banking sectors | 13 |
| 4.1 Germany..... | 13 |
| 4.2 Mexico..... | 16 |
| 4.3 Emergence of new occupations internationally | 17 |
| 5 South African trends in the banking and alternative banking sectors..... | 20 |
| 5.1 Key trends in the banking and alternative banking sectors..... | 20 |
| 6 Emergence of new banking occupations in South Africa..... | 30 |
| 6.1 Skills Gaps and needs in the sector..... | 35 |
| 6.2 Hard to Fill Vacancies in the sector..... | 38 |
| 7 Education and training programmes for new occupations in banking..... | 42 |
| 7.1 Overview of Education, Training and Development..... | 42 |
| 7.2 Education and Training programmes that address new and emerging occupations in the sector | 44 |
| 8 Conclusion and recommendations | 50 |
| 8.1 Recommendations | 50 |
| References | 52 |
| 9 Financing for start-ups, company growth, and innovations..... | 53 |

LIST OF FIGURES

| | |
|---|----|
| Figure 1: Subsectors in banking | 6 |
| Figure 2: Size of banking and alternative banking sector employers | 11 |
| Figure 3: Change drivers in the German banking sector | 14 |
| Figure 4: Benefits associated to Alternative Banking | 22 |
| Figure 5: Most used Alternative Finance models used in South Africa | 23 |
| Figure 6: GDP growth, 2022Q1-2023Q1 | 25 |
| Figure 7: Number and proportion of employers per subsector | 26 |
| Figure 8: Number of employees, 2022Q1-2023Q1..... | 27 |
| Figure 9: Number and proportion of employees per subsector | 27 |
| Figure 10: Change in employment in the last 5-years, banking and alternative banking sectors..... | 28 |
| Figure 11: Are there new and emerging occupations in the sector?..... | 32 |
| Figure 12: Number of students enrolled in public HEIs by major field of study, 2013-2021 | 43 |
| Figure 13: Number of students graduated in public HEIs by major field of study, 2013-2021 | 43 |

LIST OF TABLES

| | |
|---|----|
| Table 1: Types of new occupations internationally | 18 |
| Table 2: Liabilities and assets of banks and mutual banks, 2022 | 26 |
| Table 3: Occupations needed in the sector | 30 |
| Table 4: New and emerging occupations, % of employer responses | 32 |
| Table 5: Why are there new and emerging occupations in the sector, %of employer responses | 33 |
| Table 6: Skill gaps in the banking and alternative banking sector | 36 |
| Table 7: Hard-to-fill-Vacancies in the banking and alternative banking sector..... | 38 |
| Table 8: HTFV, % of employer responses..... | 39 |
| Table 9: Overview of PSET and student enrolment, 2020 | 42 |
| Table 10: Number of workers and unemployed registered in SETA-supported learning programmes, 2021/22..... | 44 |
| Table 11: Number of workers and unemployed certificated in SETA-supported learning programmes, 2021/22..... | 44 |
| Table 12: Education and training programmes on offer, not at all inclusive list..... | 44 |

1 INTRODUCTION

This study commissioned by the Banking Sector Education and Training Authority (BANKSETA) looks at new and emerging occupations within the banking subsector and alternative banking subsector.

Over the years, banks have consistently responded to the digitalisation of society, adding innovative services such as ATMs, credit cards, debit cards, online payment services, online investment services, electronic fund transfers, telephone banking, mobile banking, mobile applications, digital wallets, and internet banking, among others. Banks were also among the first service providers to digitalise their functions (Funcas, 2021). Logically, these changes will make some banking jobs redundant, as automation represents an opportunity to reduce the administrative burden of some traditional activities. However, new technologies and the vast amounts of data managed by the banks will create a number of opportunities for reskilling of existing employees and new jobs within the banking sector.

Over the course of half a decade the World Economic Forum (WEF) has tracked the labour market impact of the Fourth Industrial Revolution (4IR), identifying the potential scale of worker displacement alongside strategies for empowering job transitions from declining to emerging roles (World Economic Forum, 2020). In the middle of this conundrum, lies a solution of training and development for new and emerging roles in the banking industry. Countries have taken different approaches towards reorienting themselves to the workforce of the future. This report will explore the future of banking in South Africa as well as in a global context, by examining the changing nature of work within banking, also including the emergence of new occupations and skill gaps that will occur because of the changes in the industry.

According to REAL (2019) occupations are changing rapidly, with often a greater integration of roles and greater degrees of complexity. BANKSETA (2018) describes new and emerging occupations as “new occupations with a strong technological flair like data analytics, data scientists [that] will emerge in the next few years”. The WEF (2022) points out that emerging professions reflect the adoption of new technologies and increasing demand for new products and services, which are driving greater demand for green economy jobs, roles at the forefront of the data and AI economy, as well as new roles in engineering, cloud computing and product development.

Pikulunski (n.d) defines the identification of new occupations as “an understanding of the processes that create new forms of work in an economy”. An example of one of these processes that are exacerbating the need for new occupations in the banking sector is digitisation. Carbó-Valverde (2017) stated that digitalisation is accelerating at a fast pace, with the banking sector likely to witness more innovations over the next ten years than in the previous fifty years. Fatah (2018) defines digital banking as that of FinTechs, who can be described as either start-ups or traditional financial or technology organisations that combine technology and financial services to enable, enhance or compete/disrupt the current traditional banking business model by transforming customer applications and back-end office tasks. Digital banking can be seen as a double-edged-sword that provides an efficient approach to banking needs and solutions for clients, as well as poses a threat to employees working in traditional banking jobs.

Verhoef et al (2021) state that digitisation is converting physical or manual activities into digital processes and digital transformation is when organisations use digital technologies to offer value to clients. Dery et al (2017) adds that digital technologies are tools that organisations use to interact with

their customers to transform the way they run their businesses. These include cloud computing, Internet of Things (IoT), social media, robotics, mobile and analytics, amongst others.

1.1 Purpose of study

The purpose of the research study is to provide a detailed analysis of new and emerging occupations in both the banking and alternative banking sectors. The aim is to determine how workforce needs will change as a result of the change drivers in the sector, so employers and training providers can prepare employees accordingly.

The research questions for this study are:

- What is the nature and extent of skills needs in the banking and alternative banking sectors?
- What are the new and emerging occupations in the banking and alternative banking sectors?
- Do existing training opportunities cover the skills needed and the new and emerging occupations in the banking and alternative banking sectors?

2 BACKGROUND

2.1 The banking and alternative banking sector

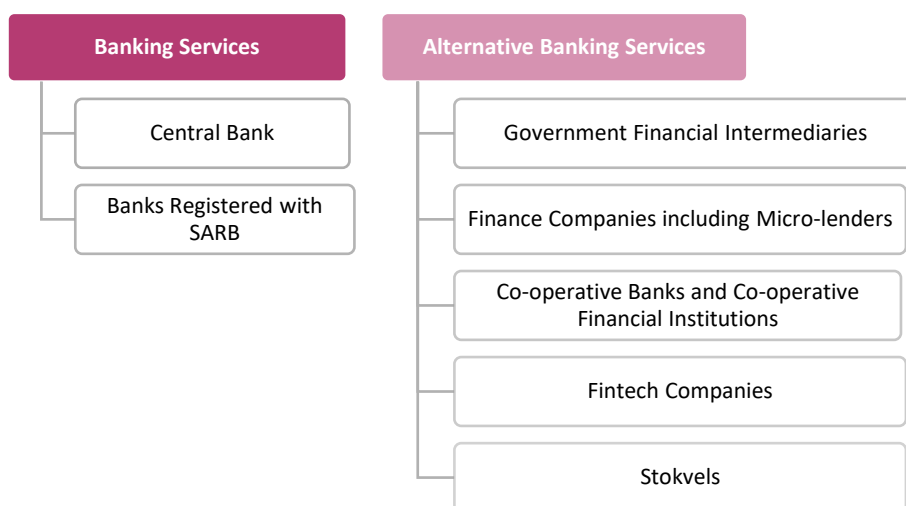
The financial and business services sector, as classified by Statistics South Africa (StatsSA), consists of all entities that manage money. Generally, it consists of the following institutions: banks, insurers, asset managers, stock brokerages, credit unions, micro-financiers and any other private or public sector companies capable of extending credit or other financing activities. The financial services sector can be categorised into three subsectors: Banking and credit services; Insurance; and Investment (BANKSETA SSP, 2021). The financial and business services sector encompasses the banking sector.

The banking subsector comprises all banks that are registered with the South African Reserve Bank (SARB) and are in the possession of a banking licence while the alternative banking subsector focuses primarily on lending and savings institutions that are both formal and informal at a micro-level.

Although not formally dissected into subsectors, BANKSETA, in general, refers to the banking and alternative banking subsectors.

The figure below, taken from the BANKSETA SSP (2021) provides more detail:

Figure 1: Subsectors in banking



Source: BANKSETA SSP, 2021

Currently, the South African banking subsector is comprised of:

- 18 registered banks
- 2 mutual banks
- 14 local branches of foreign banks
- 43 foreign banks with approved local representative offices.

The alternative banking subsector comprises:

- Over 10 development finance institutions (DFI)
- 4 co-operative banks
- 25 registered co-operative finance institutions (CFI)
- Credit providers, credit bureaus and debt counsellors registered with the National Credit Regulator (NCR)

- over 100 financial technology (Fintech) companies
- over 800 000 stokvels operating throughout South Africa.

“The BankSETA employers fall within two typologies: super-large corporate banks that provide employment to almost 96% of the sector and small, medium and micro enterprises each employing a handful of people. To ensure that all employers irrespective of their sizes are provided with an opportunity to access skills development, the BANKSETA addresses skills needs of the sector by classifying the sector into the banking and alternative banking subsectors as well as into small, medium and large companies” (BANKSETA SSP, 2021).

As reaffirmed by Jivan (2020), the sector includes a number of large and smaller banks. This is in terms of their relative weight of banking assets, retail banking market share and client base. The large ‘big-five banks’ are Standard Bank, Nedbank, First National Bank (which is part of the First Rand group), ABSA Bank and Capitec Bank. The smaller banks include African Bank, PostBank and UBANK Limited.

BOX: Definitions

Traditional banking

According to BANKSETA (2022), a bank is a public company (limited) registered as a bank in terms of the Banks Act 94 of 1990. The business of a bank is the solicitation and advertising for, and the acceptance of deposits from the general public on a regular basis and the utilisation of deposits accepted. The core banking services offered by most banks include:

- Retail banking services for individual clients in their personal capacity from the current accounts, credit cards, personal loans, home loans, vehicle finance and savings and investments
- Business banking services assist businesses with business current accounts, business credit cards, business loans, tailored products and services, business relationship management, small business support including mentorship and network outreach
- Corporate banking supports large-scale organisations both locally and abroad with a range of banking services.

Alternative Banking

According to IBM Global Services, alternative banking is a set of alternative delivery channels. It is conducting financial transactions electronically, without physically interacting with the bank. Alternative banking is alternative options for process banking transactions other than traditional means (Chebii, 2013). Alternative banking is sometimes referred to as branchless banking, implying they are a distribution channel strategy used for delivering financial services without relying on bank branches. However, the BANKSETA (2021) describes the alternative banking sector more broadly. According to the SETA it covers a range of public sector financial intermediaries, co-operative banks and co-operative financial institutions and micro-finance organisations and a myriad of informal lenders and savings societies operating in the sector.

Fintech

The BANKSETA (2018) states that FinTech (financial technology companies) is any company that applies technology and financial services to help new companies manage the financial aspects of their business including: software, applications, processes and business models. The South African Reserve Bank (2019) describes FinTech as technologies applied to financial services with the potential to disrupt current business models, applications, process or products.

In a paper on the evolution of Fintech, Arner et al. (2015, p.1) describe the development of Fintech as an ongoing process “during which finance and technology have evolved together” and which led to numerous incremental and disruptive innovations, such as Internet banking, mobile payments, crowdfunding, peer-to-peer lending, Robo-Advisory, and online identification.

Neobanks

Hopkinson and Klarova (2019) state that a neobank is a form of bank which is entirely online and provides its products solely through online channels without owning physical branches. It is noted that at the majority of Neobanks customers are millennials that are confident in using new technology. A financial institution operating under the Neobank business model may possess a license for offering at least a payment account where its services are available only online (Laloux, 2015).

2.2 Structure of report

The report has 8 sections. Section 1 introduces the study. Section 2 provides a background on the banking and alternative banking sectors. Section 3 discusses the methodology of the study. Section 4

discusses the international trends in the banking and alternative banking sectors. This is followed by Section 5 which discusses the South African trends in the banking and alternative banking sectors. Section 6 discusses new and emerging occupations in the banking sector. Section 7 looks at education and training programmes before Section 8 concludes the study and provides recommendations.

3 METHODOLOGY

The study used a mixed methodology utilising both primary qualitative as well as primary and secondary quantitative research methods. For this study semi-structured interviews were conducted, a survey was administered, and secondary data analysis was conducted. This will be elaborated on below.

The process was as follows:



3.1 Literature review

The study started with desk research which was used to develop a literature review. The literature review covered the broad themes below:

- Introduction and definition of key terms
- International trends
- South African contextual drivers for the emergence of new occupations
- Review of secondary data from BANKSETA, StatsSA, etc. on labour trends and occupations within the banking sectors
- Review of training programmes offered in the PSET sector and by private training providers that address the skills needs of the banking sectors
- Conclusion – with recommendations for refining the primary data collection phase.

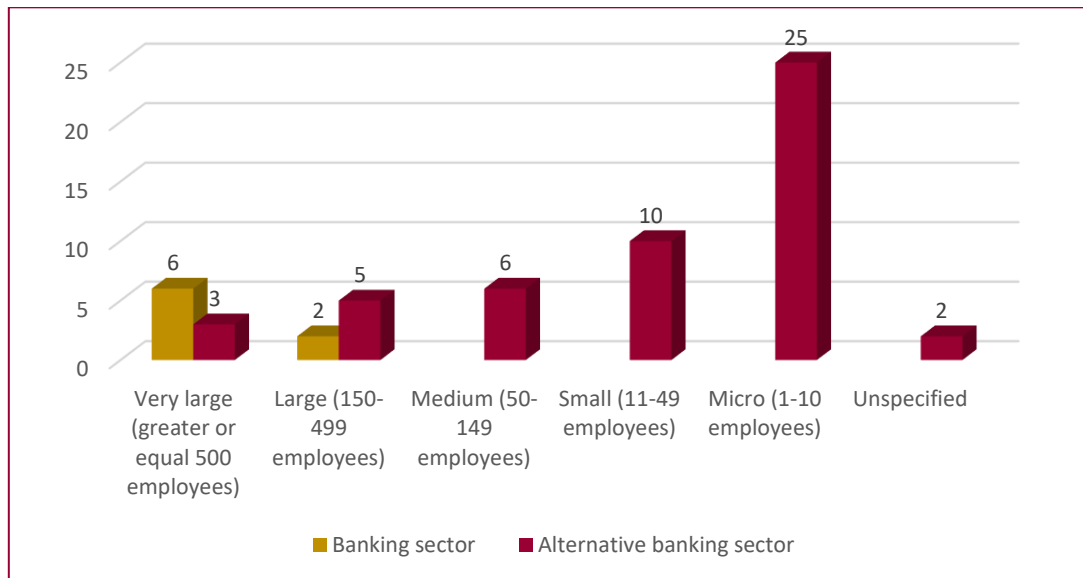
3.2 Conducting a Survey

The literature review was used as a basis to develop the survey instruments. Two surveys were developed: one for mainstream banks and one for the alternative banking employers.

The survey instruments were developed on the Survey Monkey platform. A list of employers from the BANKSETA database with their contact details was used. Emails and SMSs was sent to all of the employers on the database, provided the contact details were accurate. There was no sampling technique used. The survey was sent out to 619 alternative banks and 54 traditional banks on the BANKSETA database. Of the 619 alternative banks, 51 responses were received, and of the 54 traditional banks, 8 responses were received. Some employers skipped certain questions and as such, not all employer responses are represented in each question. An analysis of the respondents to the survey is provided below.

The figure below shows the size of the banking sector and alternative banking sector employers who responded to the survey.

Figure 2: Size of banking and alternative banking sector employers



Source: BANKSETA survey, 2023

Banking sector employers who responded to the survey are predominantly very large (N=6) and large (N=2). Alternative banking sector employers who responded to the survey are small (N=10) and micro (N=25).

3.3 Conducting Interviews

The literature review and the survey were used as a basis to develop interview instruments. Semi-structured interviews were conducted with key stakeholders in the sector including employers, training providers, as well as representative bodies in the banking sector. These semi-structured interviews contextualised the quantitative data and provided details on which skills are needed by managers and management development models. These instruments were tried and tested, further developed based on feedback, and approved. The instruments are included in Annexure 1.

A matrix of key informants was developed and agreed with the SETA prior to interviews taking place. An introduction letter was developed to facilitate introductions with the research team and participants.

3.3.1 Sampling method

For this study, interviews were conducted with 3 groups of stakeholders: employers, training providers, and associations.

In terms of banking sector employers, the aim was to interview all the locally controlled banks (14 banks). Interview requests were sent to these banks, of which 6 requests were accepted and 6 interviews were conducted. For alternative banking sector employers, 6 organisations were randomly selected covering 2 small, 2 medium and 2 large size employers. Interview requests were sent to which 2 organisations accepted and conducted the interviews. In total, 8 employers were interviewed.

For training providers, 16 organisations on the BANKSETA database were selected and 5 interviews were conducted.

For industry organisations, desk research was conducted to determine which are the key associations representing the sector. From the desk research, 17 organisations were identified, and an attempt was made to interview all. However, only 4 interviews were completed.

The interview sample was intended to be informative rather than representative - we looked for people who could provide insights and explanations. All qualitative interviews were recorded, summarised, and analysed. A thematic analysis was conducted capturing key themes. The findings from the analysis were linked to the research questions.

3.4 Consolidation of findings and writing of draft report

The approach and methodology were designed to achieve a level of triangulation: establish what we know from the literature, add and enhance using a survey, and conduct qualitative interviews to verify what is known, fill gaps, explain and explore solutions. In doing so, there is a level of triangulation that enables the research to make findings, draw conclusions and make recommendations.

All the different streams of research, including the literature review, interviews and survey were analysed and used to develop the draft report.

3.5 Limitations

A key limitation of this study is the low response rate received from both alternative and traditional banks in the interview and survey processes. For the survey, 619 alternative banks were contacted and only 51 responses were received. Similarly, 54 traditional banks were contacted and only 8 responses were received. A total of 59 survey responses (N=59).

With regards to the interview process, the research team aimed to interview 30 stakeholders in total, however, due to numerous scheduling conflicts and lack of responses, only 17 interviews were conducted. Nonetheless, key findings were drawn from the available responses in terms of the skills needed by managers and the management development models needed to upskill managers.

4 INTERNATIONAL TRENDS IN THE BANKING AND ALTERNATIVE BANKING SECTORS

BIS (1999) explains the factors that affect international banking by stating that: “new technologies, financial innovations and liberalisation of national as well as international markets have changed the environment in which banks operate and have also had implications for the conduct of monetary policy and the fundamental stability of the financial sector. Banks have had to adjust to increased competition from other financial institutions as well as to changes in the regulatory environment and, in some cases, these changes have contributed to serious financial instability”. Although this statement is twenty-four years old, it still remains relevant to the constantly evolving banking trends and forecasts across the globe.

In terms of international banking trends, according to Beckley (2022), the expected challenges are:

- Transparency and reliability of new financial platforms, like crypto currencies.
- Visibility into supply chain systems that reduce risk in this globally connected world economy.
- Oversight of ESG (environment, social and governance) policies driven by both governments and investors.

In relation to occupations and skills, IDC (2021) predicts that there will be a global shortage of full-time developers which will increase to a staggering 4 million in 2025. Blakey (2023) adds that the IT skills gap will introduce barriers for new talent to enter an industry already experiencing significant skills shortages, with organisations across sectors struggling to find the technology talent they need to innovate and keep a competitive edge.

The Financial Sector Assessment Program (FSAP) was established in 1999. It is a comprehensive and in-depth assessment of a country’s financial sector. FSAPs in advanced economies are conducted by the International Monetary Fund (IMF) with a focus on assessing the resilience of the financial sector, the quality of the regulatory and supervisory framework, and the capacity to manage and resolve financial crises. In developing and emerging market economies, FSAPs are conducted jointly with the World Bank and the IMF. Two of the countries in the IMF Financial Stability Spotlight in 2022 were Germany and Mexico. A brief analysis on these countries is presented below:

4.1 Germany

According to IMF (2022), Germany is the leading country in continental Europe for FinTech, hosting some of the largest neobanks and related service providers. The banking sector is characterised by its three-pillar structure: commercial banks, public savings banks and cooperatives. There are 21 large banks and banking groups. There are also 25 third-country bank branches, 41 credit institutions (including 15 development banks) and 38 securities trading banks.

Oliver Wyman (2018) characterises global technology companies as the “fourth pillar”, that is not primarily a further supporting pillar, but rather an accumulation of challengers of traditional business models – accelerating the change within the German banking system by establishing new business models and customer experiences.

In Germany, the three pillars of banking each encompass separate training structures for each kind of bank and continuing training institutes, the so-called “bank academies”. The whole of the value-added

chain of the banking sector is processed within these structures, essentially via banking institutes that act as universal banks.²

Germany's approach to training and development in the alternative banking sector is also a priority. According to the Federal Ministry for Economic Affairs and Climate Action (2020), the German Accelerator helps the most promising German start-ups break into international markets and expand their global activities. Participants take part in intensive workshops and engage with experienced experts, enabling them to enter a steep learning curve and to achieve their goals more quickly. In addition to this, EXIST Research Transfer was created in early 2008 to support particularly challenging technical start-up projects at universities and research centres (approx. 40 projects per year) by first supporting the product development at a scientific institution and then the set-up phase of the company.

It appears that the banking sector in Germany has a stable foundation, which will assist in dealing with the external pressures of the globally advancing banking sector. The change drivers in the German banking sector are identified as: technology and innovation, client behaviour and demand, politics and regulations as well as macro-economic and socio-economic developments that have and will alter the future of banking. These change drivers are in line with those recognised in South Africa.

The figure below details Germany's change drivers.

Figure 3: Change drivers in the German banking sector

| CHANGE DRIVER | | EVOLUTION | | DISRUPTION |
|---------------------------|--|---|---|---|
| TECHNOLOGY AND INNOVATION | MODULARISATION AND CLOUD COMPUTING | Outsourcing of IT infrastructure, API world » | Commoditisation of IT, standard APIs » | Dominance of "Big Tech" firms |
| | PROCESS TECHNOLOGIES (E.G. ROBOTICS, OCR, NLP) | Automation of existing processes » | Automation of new digital processes » | Redundancy of entire process chains |
| | DISRUPTIVE TECHNOLOGIES (E.G. BLOCKCHAIN, ARTIFICIAL INTELLIGENCE) | New use cases and proof of concept » | Co-existence of infrastructure alternatives » | Establishment of new infrastructure standards |
| | | | | |

² Dr. Heckel. 2014. *Upgrading training in the Banking sector. Design perspectives within the context of the German Qualifications Framework*

| CHANGE DRIVER | | EVOLUTION | | DISRUPTION |
|-----------------------------|--|---|--|--|
| CLIENT BEHAVIOUR AND DEMAND | MOBILITY AND MULTICHANNEL ASPIRATION | Mobile phone as anchor for banking products » | Full digital connectivity "beyond banking" » | Adoption of AI and bionics in day-to-day life |
| | TRANSPARENCY AND COST AWARENESS | Sustained price sensitivity » | Willingness to pay for value added services » | Full commoditisation |
| | LOSS OF CUSTOMER TRUST | Ongoing "brand drain" for banks » | Stable relevance of banks » | Significant threats to bank relevance |
| POLITICS/ REGULATION | PROTECTIONISM AND BREXIT | Continued geopolitical uncertainty and Brexit outcome » | | Increased protectionism and "cliff edge" Brexit |
| | CAPITAL REQUIREMENTS (BASEL IV, TRIW), CYBER RISK | Stable or slightly increased capital requirements » | | Demanding additional requirements due to increase in credit losses or cyber events |
| | CLIENT AND DATA PROTECTION (MIFID 118, GDPR9, PSD 119) | Provision of customer data to 3rd parties (with client consent) » | | Client data fully monetisable |
| MACRO-/ SOCIO-ECONOMIC | LOW INTEREST RATE ENVIRONMENT | Accelerated interest rate increase » | Sustained low interest rates in the mid-term » | Uncontrolled interest rate and inflation |
| | ECONOMIC OUTLOOK | GDP stagnation » | Moderate growth » | Recession and turning credit cycle |

| CHANGE DRIVER | EVOLUTION | | DISRUPTION |
|---|---|---|--------------------------------------|
| DEMOGRAPHICS (AGE PYRAMID, URBANISATION, MIGRATION) | Overaging and lack of immigration » | Immigration overcompensates overaging » | Uncontrolled demographic development |
| DIGITAL WORKFORCE | Low digital "activation" Of the workforce » | Agile organisations supported by robotics » | Purely digital operating models |

Source: TRIM: Targeted Review of Internal Models; MiFID: Markets in Financial Instruments Directive; GDPR: General Data Protection Regulation; PSD: Payment Services Directive

4.2 Mexico

Mexico consists of a central bank and 6 types of banking institutions which are: public development banks, public credit institutions, private commercial banks, private investment banks, savings and loan associations, and mortgage banks.³

According to IMF's FSAP (2022), Mexico faces two structural transitions which are rising risks and opportunities. The use of digital financial services, although still in its infancy, is picking up and holds the promise of increasing financial access. However, this could generate new risks from cyberattacks and new forms of foreign and domestic digital monies.¹ The three most common technologies used by Mexican FinTech start-ups are: big data and analytics (25%), APIs and open platforms (17%), and mobile and applications (15%). There is strong potential in the FinTech industry especially because of limitations with traditional banking. It is estimated that the traditional banking sector has the risk of losing up to \$4.7 trillion of revenue due to FinTech start-ups.⁴

The World Bank (2021) highlights certain challenges and approaches to Mexico's economic stability. One challenge is that Mexico lags in terms of financial inclusion. This is evidenced by the fact that only 37% of adults have bank accounts, and only 32% make or receive digital payments. This challenge is worsened by credit contributing only 42% of Mexico's GDP. The World Bank adds that there are also financial access gaps by gender. This directly impacts the financial growth of the country, impeding on internal financial penetration.

The World Bank (2021) details Mexico's development efforts implemented by the bank(s) which supported projects that included: the Mexico Strengthening Economic Sustainability DPF, Covid-19 Financial Access DPF, Mexico Financial Inclusion DPF, and the Expanding Rural Finance Project. These projects are instrumental because they support policies to facilitate credit for working capital and investments to SMEs beyond the short term⁵. Previously, 70% of SMEs in Mexico were informal, with no access to bank lending⁶. The World Bank added that these projects enabled a wider reach and for

³ Emerging Markets: Exploring Mexico's future in finance and technology | BusinessFeed (cornell.edu)

⁴ Leaders in Emerging Markets: Exploring Mexico's future in finance and technology.2018.

⁵ World Bank. 2022. Mexico Strengthening Economic Sustainability DPF.

⁶ National Economic Census 2014.

a more efficient operation of the digital finance ecosystem, along with bridging access gaps in the country.

Although there are measures towards the improvement of the financial ecosystem in Mexico, McKinsey & Company (2018) found that banks in Mexico need to attract employees with backgrounds in computer science, information technology and systems engineering in order to sustain and manage the banking and alternative banking sector. Unfortunately, graduates of the above-mentioned programmes are not selecting banking as their preferred career path. According to a 2016 INEGI study, only 6% of the computer science, 5% of IT, and 4% of systems engineering graduates chose to work in the financial services industry. In this instance, a more developmental approach towards education and training for finance services is required in Mexico.

4.3 Emergence of new occupations internationally

Internationally, banking sector employment has undergone profound transformation with a wealth of new and emerging innovations being created in response to several drivers of change. Amongst the most significant changes are technology, regulatory compliance, and other changes brought about as a response to the Covid-19 pandemic. With the advancement of these changes, there follows redundancies across some of the more traditional banking occupations as the emergence of these new technologies that are disrupting the traditional banking sector operations have led to the questioning of the importance and relevance of current employee skills within the sector. In the same breath, the transformation of the banking sector also has the potential to introduce a need for new skills and occupations. An example of this is the growth in cyber security incidents at banks, which have resulted in an increased demand for IT security roles.

There are several technological, regulatory, social and financial factors that could influence banking sector employment going forward. It is also crucial to consider shifts in employment within the financial sector, from traditional banks to FinTech firms. An undeniable and important key driver for new and emerging occupations in the banking sector is the Covid-19 pandemic, which led banks to prioritize the wellbeing of their employees, shift their approach to employee segmentation, and re-prioritize leadership traits, with potentially beneficial effects on employment trends (Funcas, 2021). While some traditional branch-based jobs have been cut since 2008, there have also been new positions generated to face the drivers of change (Funcas, 2021).

Furthermore, traditional retail banking has rapidly been digitising and automating with impacts on organisational structures and processes. It has also ramped up demand for high-skilled workers with technological skills such as programming, machine learning, robotics, coding, analytical and quantitative skills (Ditse, 2020). These are many of the same skills in demand from the alternative banking sector which uses digital platforms to offer financial services such as mobile payments or transfers, alternative lending or funding, automated financial service advice and crowdfunding.

Also, change drivers such as the Covid-19 pandemic, digitisation and technology, symphonic enterprises, regulatory changes, risk and cybercrime and the disruptors in banking have shone a light on the operations of the banking sector in the current and future times. These drivers allow for employees within the financial sector to position themselves within the rapidly changing banking environment. According to Pretorius (2017), the banking sector finds itself in a space where there are more ways to do banking than ever before, with financial transactions no longer the preserve of traditional banking.

Deloitte (2023) describes Banking as a Service (BaaS) as the provision of banking products and services through third-party distributors. This is achieved through integrating non-banking businesses with regulated financial infrastructure. Bessenbach (2021) states that BaaS describes a model in which licensed banks integrate their digital banking services directly into the products of other non-bank businesses. Flinders (2023) states that the most common BaaS being offered is foreign exchange (48%), buy now, pay later (48%), small and medium-sized enterprise lending (47%), and loyalty schemes (46%). Dua (2022) adds that banks have responded by enabling FinTech firms and neobanks to have a bank's resources and infrastructure to expand their offerings while lowering operating costs. This will enable banks to also create new revenue streams at the same time.

In terms of employment, according to the WEF, it is estimated that by 2025, 85 million existing roles globally will be displaced due to factors such as technology and automation – all exacerbated since the onset of the Covid-19 pandemic. The WEF also estimate that ninety-seven million new roles will be created in their place (WEF, 2022).

HSBC (2018) released a report which offers a glimpse into the future of a career in banking, predicting six new types of jobs and how the role of people will evolve in the workforce.

Table 1: Types of new occupations internationally

| Type of jobs | Description | Key skills |
|--|--|--|
| Mixed Reality Experience Designer | <p>Consensus is growing that mixed, or augmented reality (MR/AR) will be the primary interface to the digital world in the future.</p> <p>Overlaying the physical world with a layer of digital data will allow consumers to create any imaginable character or object and locate them in physical space as if they were real, and this technology will likely be used to carry out some of our banking needs in the future.</p> | <p><i>Designing these complex three-dimensional interfaces and making them 'slick' and intuitive will be a major new employment area for the future, requiring skills in aesthetic design, branding, user experience and 3D mechanics.</i></p> |
| Algorithm Mechanic | <p>A rising proportion of decision-making is made by algorithms, fed on a variety of input data to reach rapid conclusions.</p> <p>However, these algorithms operate in a fast-changing environment of shifting regulations, new information, and evolving products. Constantly tuning these algorithms to optimise banking customer experience, will be a skill in growing demand.</p> | <p><i>This role will require skills in risk management, service design, and financial literacy, rather than technological proficiency.</i></p> |
| Conversational Interface Designer | <p>Machines have become progressively more human in their interactions over the years. Chatbots are already used in banking to answer simple queries and gather information.</p> | <p><i>Building natural, low-friction interfaces that go beyond solving immediate challenges to surprise and delight customers requires a mixture</i></p> |

| Type of jobs | Description | Key skills |
|------------------------------------|---|---|
| | Conversational interface design is an emerging skill to help take best advantage of voice and text chatbots, and one that will only grow in importance as the technology becomes more mainstream. | <i>of creative, linguistic, and anthropological skills.</i> |
| Universal Service Advisor | As mixed reality becomes the main interface between people and machines, highly skilled service agents, empowered to support customers across a variety of products, will be able to switch seamlessly between virtual and physical environments from anywhere anytime to meet customer needs. | <i>Critical skills for tomorrow's customer advisor are a combination of product and domain knowledge with excellent customer communication and empathy. This will require a level of comfort with the key communications technologies, including performing in a virtual environment.</i> |
| Digital Process Engineer | <p>Many banking customer interactions – from onboarding to replacing a lost card – follow standardised flows that balance security and regulatory requirements with the desire for an efficient customer experience.</p> <p>A digital process engineer analyses, assembles and optimises these workflows, adjusting them constantly to maximise throughput and minimise friction.</p> | <i>The digital process engineer will need great discovery skills, to understand large and interconnected workflows and diagnose problems and bottlenecks, and creative skills to help them to prototype and test solutions.</i> |
| Partnership Gateway Enabler | In an increasingly networked business world, the digital relationships with banking partners, like fintechs and global technology companies, will need careful monitoring, maintenance, and negotiation. | <i>Gateway Controllers will balance technical knowledge of the digital interfaces with an understanding of security and risk management. Communications skills for partner engagement will also be highly valued</i> |

Source: BusinessTech, 2018

Moreover, Funcas (2021, 15) lists cybersecurity, credit analysts, robot programming specialist, blockchain architect, and data scientist, among others, as opportunities for reskilling and new entrants into the job market. Amic (2022) explains the purpose of a cybersecurity employee as: “with cybercrime posing an imminent threat to the banking sector, there has been an uptake in the demand for cybersecurity skills and the need to protect data, networks, and systems from possible threats to individuals and organisations. For example, companies and organisations in the United States, as well as multiple foreign governments, were harmed by theft of intellectual property, trade secrets and other highly valuable information by Advanced Persistent Threat (ATP). With new advancements brought about by technologies will include multiple lessons to learn on the risks they involve”.

5 SOUTH AFRICAN TRENDS IN THE BANKING AND ALTERNATIVE BANKING SECTORS

As the previous chapter demonstrated, technology has been the main impetus behind new and emerging occupations. Those technologies require the innovators and technicians to that are directly involved in their development, maintenance and use. The technologies also change the way in which banking is organised and structured and so there are ripple effects that also result in new occupations. The speed at which these technologies are introduced, and occupations emerge is often dependent on social, environmental (such as Covid19) and economic factors. This section unpacks these change drivers in South Africa and their impact on banking.

5.1 Key trends in the banking and alternative banking sectors

The FSCA (2022) lists the key trends and developments in the South African banking sector. These are listed below:

- Covid-19 and the impact on operating models and profitability of banks
- Social unrest and the damage to banking infrastructure
- Accelerated digitalisation of the industry
- Social media as a platform for engagement between customers and banks
- Cost management amongst commercial banks

Additionally, the authors state that competition has notably increased in the sector in the last 5 years with the arrival of three newcomers including Tyme Bank in 2018, Discovery Bank in 2019 and Bank Zero launched in 2021. Some of these key developments are highlighted below:

5.1.1 Technological transformation

Notwithstanding the significance of the other key developments in the sector, the most overarching issue that seems to be affecting and influencing the South African banking sector is technological transformation. Jenkin and Naude (2018) argue that the significant opportunities and unstoppable transitioning towards a digital-centric world are apparent, the underlying concerns of job security and loss are ever present, particularly in a country such as South Africa, where unemployment, in particular youth unemployment (the digital generation), is high. In addition, automation poses a threat to banking and finance-related jobs that involve or encompass administration (e.g., opening a bank account), bookkeeping, accounting, auditors, insurance claims, data entry, customer service (e.g., information provision), financial assistance and tellers (Arntz et al 2016).

A banking subsector stakeholder stated that their organisation and others in the sector constantly need to raise the bar and keep abreast of the changes in the sector including digitisation. Their bank strives to be a platform business, as opposed to being “only a bank”. They are transforming from being a purely financial organisation to “like an online mall to connect both clients, providers, transportation providers, everything that you would need in one place.... So, it is not only when you are looking for finance that you access our platform, but you will be able to connect and collaborate and find your needs depending on what they are, whether it be energy, alternative energy sources, other clients, cheaper ways of transport, whatever the case may be” (Stakeholder interview, 2023).

Another stakeholder supported this by stating that the sector is moving towards more platform-based banking and a drive towards digital transformation. Partly to improve operational efficiency – “cost-to-income, reducing cost, finding more efficient ways to do things” (Stakeholder interview, 2023).

In addition, there are also fully digital banks providing a branchless service. These banks need to keep their systems updated and stay abreast of the latest technologies and they rely quite heavily on actuarial and data science skills (Stakeholder interview, 2023).

Furthermore, a stakeholder in the sector stated that the sector is moving towards an ecosystems approach. In terms of this approach, “we are creating ecosystems where a client can go from opening up a bank account, getting an educational loan, through the different phases of their life, to be able to get retirement funding, life cover, educational benefits, short term insurance, health. It really is across how you manage your investments, and it is kind of that ecosystems forcing us to be able to as a company to be competitive across industries” (Stakeholder interview, 2023).

Some technological advances can be good for banks such as cloud computing, which can reduce costs and promote low-cost innovation (BANKSETA, 2021). Ditse (2020) states that cloud computing has been used for customer relationship management, financial accounting and human resource management. On the other hand, other technologies disrupt the sector such as crypto currency, which skips banks in the payment process (BANKSETA, 2021). However, the alternative banking subsector can provide services in this space.

In a competitive and changing environment, banking and alternative banking sector businesses recognise that ICT is a resource used to interact with clients. These organisations and their clients have become more communicative and flexible, partly because of new technology. In addition to lowering costs, “ICT helps improve quality through the provision of real-time operations, constant updating of customer information, reduced delays, increased reliability of outputs and standardisation of decision-making” (Cabrita & Bontis, 2008). In an interview, a stakeholder stated that the sector is moving into the platform-based space and undergoing technological transformation to understand customer dynamics and enhance the customer experience. According to the stakeholder, “AI has been a big shift in terms of banking because of its ability to take big datasets and in real time, using machine learning and an even robotic process automation, thereby really making it a lot easier to add value to the customer experience” (Stakeholder interview, 2023).

However, technological advancements in the banking sector have increased the importance of information security. Ambhire and Teltumde (2011) highlights the importance of information security in the ever growing online and internet banking services. The authors define information security as the process by which a business protects and secures its systems, facilities and media that process and maintain information crucial to its business operations. Banks and other financial institutions protect their information by establishing a security process that identifies risks, creates a strategy to manage the risks, implements the strategy, tests the implementation of the strategy, and monitors the environment to control the risks. It is important for management to adopt the best risk controls, quantify the level of acceptable risk and implement the suitable processes which protect the confidentiality, integrity and availability (CIA) of information.

Another key factor impacting change is regulation and compliance – “Regulation is becoming a really demanding sort of aspect of the business. Demanding in terms of time and resources” (Stakeholder interview, 2023). Banking and alternative banking sector stakeholders stated that the sector faces increased regulation which brings about a need for more compliance and risk management personnel to ensure that their organisation operates within the required regulation. In addition, these personnel need to be constantly upskilled to keep up with the changing regulation – “When we send out memos to them about the regulation changes, then we train them on that. We need to basically make them understand how to apply the changes as well at all times” (Stakeholder interview, 2023).

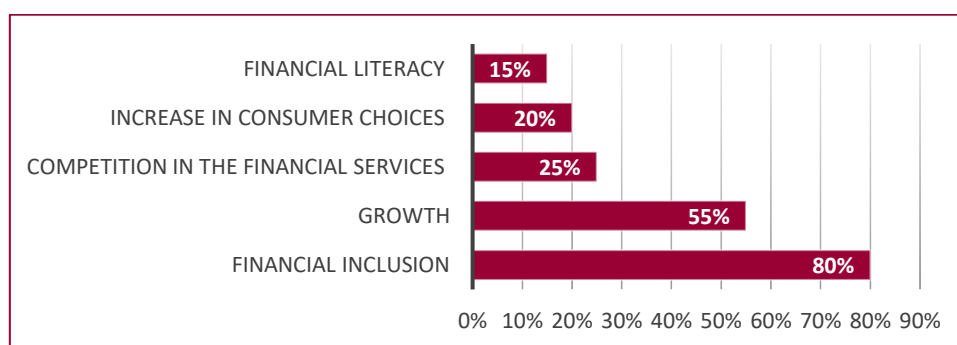
Also, sustainable banking has gained much importance in recent years, but banks still grapple with challenges in integrating the concept. Banks lack the knowledge of what sustainable banking is and how it can be integrated into the business. This knowledge gap places demand on business schools and management development institutions to generate content and pedagogy to fill the gap. These institutions must use innovative tools and strategies to educate future and current leaders in the banking industry “on how they can through their sustainable banking initiatives advance sustainable development in the various regions they operate” (Nwagwu, 2020).

Furthermore, with technological advancements came the exponential growth of the alternative banking subsector.

5.1.2 The rise of the alternative banking subsector

In terms of the benefits of the alternative banking subsector, the figure below shows that financial inclusion, followed by growth are the leading benefits associated with alternative finance. According to FSCA (2021) this is because traditional financial institutions have struggled to find cost-effective, profitable approaches to serving both the Small, Medium and Micro Enterprises (SMMEs) market and low-income consumers and FinTechs have found ways to fill the gap. The financial inclusion displayed below indicates a specific type of financial inclusion, which in this case is that of SMMEs and low-income consumers.

Figure 4: Benefits associated to Alternative Banking

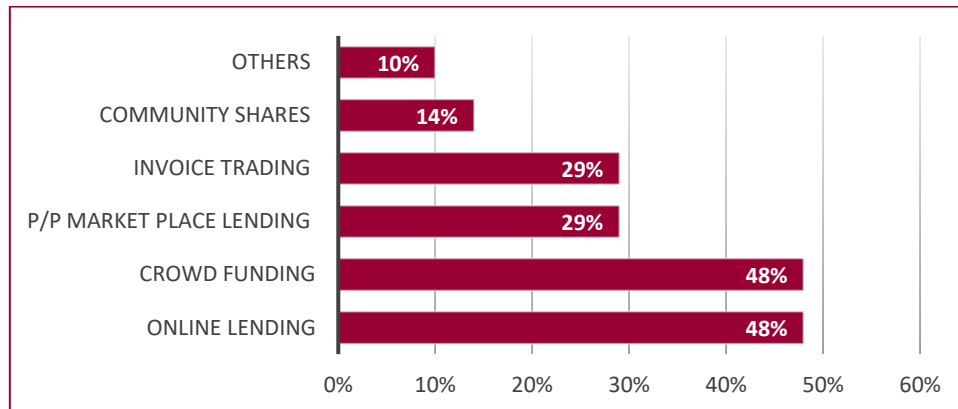


Source: FSCA, 2021

The most prominent alternative finance models that are used in South Africa are Online lending and Crowdfunding. Crowdfunding has always existed in South Africa in the form of Stokvels and recently it is technologically backed (FSCA, 2021). An example of crowdfunding in South Africa is Thundafund, which operates as a Crowdfunding marketplace for creatives, innovators and entrepreneurs. Through

Thundafund, entrepreneurs with their respective projects and ideas can raise capital and build a supportive crowd of backers through the process of crowdfunding.

Figure 5: Most used Alternative Finance models used in South Africa



Source: FSCA, 2021

The alternative banking subsector can also be associated with risk and cybercrime, which poses a need for a regulatory and supervisory environment. The Intergovernmental Fintech Working Group (IFWG) was established in 2016 with the objective to create a forum for regulators to gain deeper insights into FinTech innovation in order to regulate and foster responsible innovation. This is to help ensure the continued efficient functioning of financial markets and financial stability, and the safeguarding of customers’ interests. Members of the IFWG include the Financial Intelligence Centre (FIC), the National Credit Regulator (NCR), Competition Commission, the National Treasury, South African Revenue Service (SARS) and the South African Reserve Bank (IFWG, 2021). Also, in August 2017, a FinTech Unit was established within the South African Reserve Bank (SARB) to explore the implications of FinTech innovation for the SARB and financial services in South Africa in a structured, organised and proactive manner. The main goal of the FinTech Unit is to respond to the rapidly changing environment with agility, flexibility and speed by assessing how financial services innovation driven by technological developments impact on policies and regulations, and to assist in aligning policies and regulations with emerging innovation when required (South African Reserve Bank, 2023). This team has also been responsible for initiatives such as hosting the Southern African leg of the Global FinTech Hackcelerator, Project Khokha, and the launch of the Innovation Hub.

5.1.2.1 The impact of the alternative banking subsector on the banking subsector and vis-a-versa

During interviews some organisations stated that one subsector does not have any impact on the other, be it the alternative banking subsector on the banking subsector or the banking subsector on the alternative banking subsector. Whilst others highlighted some negative impacts including staff retention as poaching happens in the sector. And this increases cost and time to upskill employees.

A banking subsector stakeholder highlighted that FinTechs provide additional services which are not necessarily provided in the banking subsector. FinTechs provide additional payment engines which do not require credit. In the banking subsector, a lot of payments are made through traditional banking channels to transact through a credit card or in the current world through a virtual card as well. But FinTechs are operating more from providing opportunities for payment engines, without traditional banking infrastructure needed. So, it is “more of kind of funding your account by transferring cash into

a wallet and paying through the likes of like Snapchat”. Signifying a move away from traditional banking where you have to have a bank account to be able to transact.

There were some banking subsector stakeholders that highlighted the positives of the alternative banking subsector and vis-s-versa.

A banking subsector stakeholder stated that the alternative banking subsector provides services that the banking sector is not able to because of regulation - “I think alternative banking comes with the possibility of sort of hitting the market or an already established market where we are not able to offer what the alternative banking companies offer”. This stakeholder further stated that there should be partnerships between banking subsector and alternative banking subsector employers to improve the offerings provided to customers.

This is supported by an alternative banking subsector stakeholder (Interview, 2023). The stakeholder stated that “banks do not understand that we need each other to service clients and are not competing with them for business ... Banks see us very often as a threat, because we will be cutting down on their margins to ensure that the client gets a fair price. So, very often banks see that as a risk for them and they sort of create barriers to enter into their client base. But they do not understand that they cannot provide the service to their clients that we can, in other words, we have insight into the client risk, the exposures, and profile portfolios. The bank does not have the skills or the time to look at client's budget rates and exposures etc. So, they are there to provide a price and a product and we need to provide a service to the client, obviously using the banks products to do that”. Hence, they need each other to service the client.

Another stakeholder stated that numerous banks are starting to appreciate that in the last five years FinTechs are the accelerator to their businesses – “because for you to build a startup in a very specific niche area within your business that employs 50,000 people is tough. But you have got a group of people in effect that are only focused on that”.

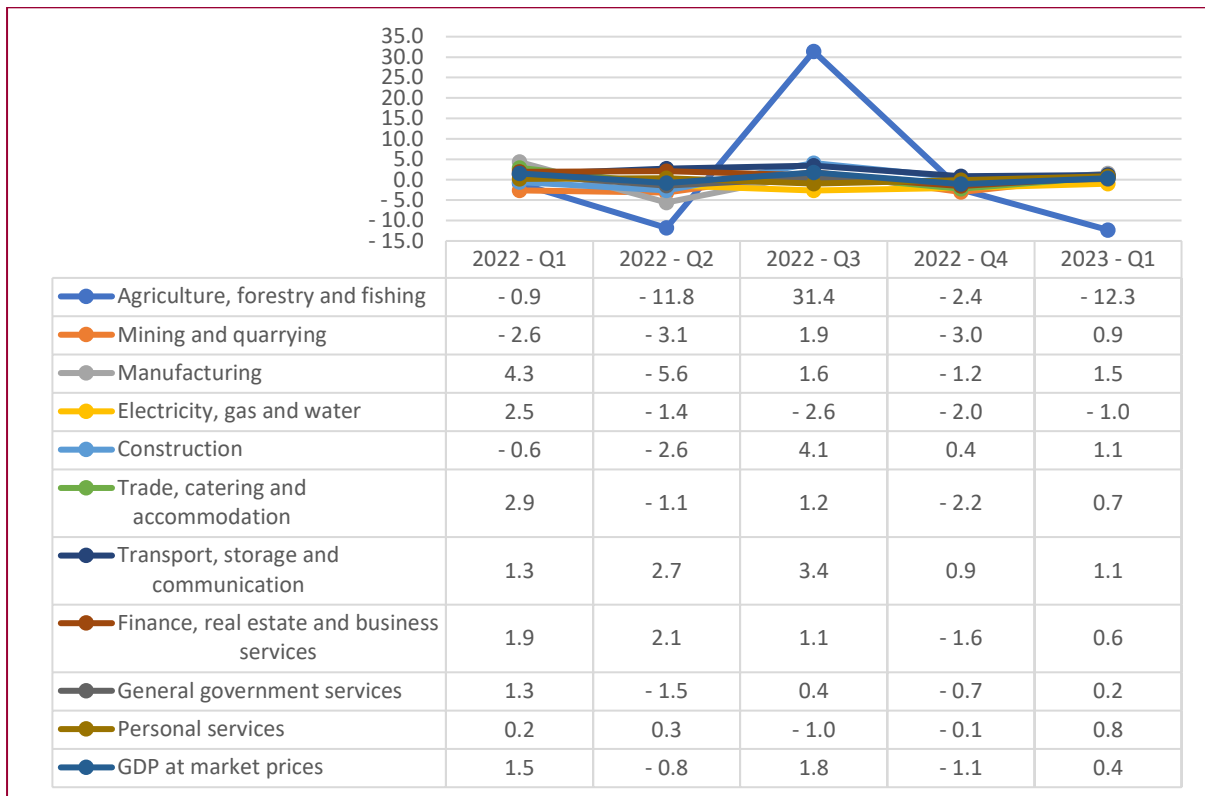
In sum, responses are mixed but there is recognition that the alternative banking subsector can support banks in offering an improved service to clients. Some stakeholders highlight the need for partnerships between the banking and the alternative banking sector businesses, and with this comes a need for personnel able to understand and manage these partnerships.

5.1.3 Economic performance of the sector

During interviews, stakeholders highlighted the deteriorating economic performance of the country as a key factor inhibiting the growth of their businesses. Coupled with the loadshedding crisis in the country, businesses are struggling to compete with international competition (Stakeholder interviews, 2023).

As stated above, the banking and alternative banking subsectors form part of the finance sector. The figure below shows that, apart from the agricultural sector, generally the economy remained stable between 2022Q1 and 2023Q1.

Figure 6: GDP growth, 2022Q1-2023Q1



Source: StatsSA 2023Q1

GDP growth in the finance sector increased between 2022Q1 and 2022Q2 by 0.2 percentage points before declining significantly to -1.6% in 2022Q4. Between 2022Q4 and 2023Q1, GDP growth increased by 2.2 percentage points reaching 0.6% in 2023Q1. GDP growth in the economy as a whole was 0.4% in 2023Q1. The main contributors to national GDP growth were the manufacturing (0.17), finance (0.15) and personal services (0.13) sectors.

Table 2: Liabilities and assets of banks and mutual banks, 2022

| Bank and Mutual Banks (R millions) | Sep, 2022 | Oct, 2022 | Nov,2022 | Dec,2022 |
|--|------------------|------------------|------------------|------------------|
| Deposits by residents | 5,052,277 | 5,085,606 | 5,149,238 | 5,144,681 |
| Deposits by non-residents | 246,838 | 239,234 | 231,112 | 240,813 |
| Total deposit liabilities | 5,299,115 | 5,324,839 | 5,380,350 | 5,385,494 |
| Loans received under repurchase agreements | 175,472 | 204,976 | 198,618 | 189,861 |
| Total liabilities to the public | 6,068,923 | 6,134,546 | 6,166,216 | 6,170,388 |
| Total equity | 537,224 | 531,841 | 542,157 | 547,704 |
| Cash reserve balances with the Reserve Bank | 135,575 | 138,251 | 142,993 | 141,929 |
| Treasury bills discounted | 397,702 | 386,917 | 375,754 | 373,717 |
| Land Bank bills and promissory notes discounted | 147 | 147 | 147 | 147 |
| Other bills discounted, including bankers' acceptances | 24,817 | 28,188 | 25,342 | 21,638 |
| Advances to the domestic private sector | 4,003,248 | 4,003,206 | 4,038,906 | 4,055,822 |
| Total deposits, loans and advances | 4,916,026 | 4,967,608 | 4,976,456 | 5,010,287 |
| Short-term government stock | 236,42 | 2252,252 | 233,729 | 237,02 |
| Long-term government stock | 508,678 | 519,859 | 556,859 | 544,241 |
| Total investments and bills discounted | 1,887,431 | 1,889,577 | 1,820,984 | 1,771,728 |
| Total assets | 7,274,325 | 7,316,141 | 7,280,602 | 7,238,256 |

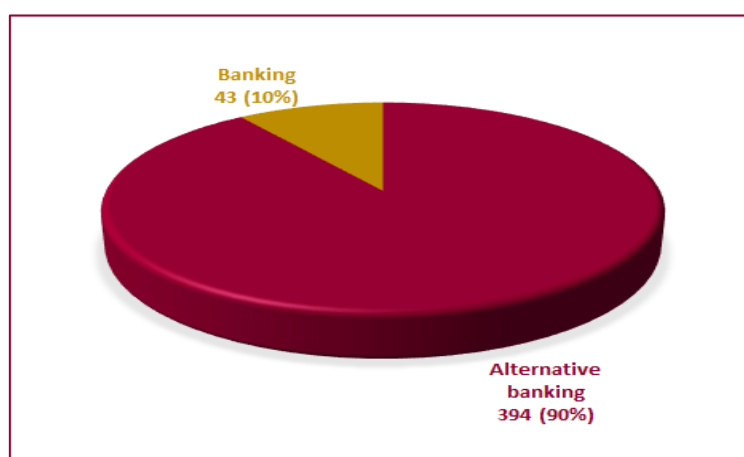
Source: SARB, 2023

The table above shows the financial position of banks and mutual banks in the country. The total liabilities to the public were R6.2 trillion in December 2022. It has been steadily increasing since September 2022. Total equity increased between October 2022 to December 2022, from R531.8 billion to R547.7 billion whereas total assets declined during the same time period. Total assets for banks and mutual banks declined from R7.3 trillion in October 2022 to R7.2 trillion in December 2022.

5.1.4 Employment analysis

According to the SARS Levy data, over 700 employers pay skills levies to the BANKSETA. The BANKSETA Workplace Skills Plan (WSP) data (2022) shows that there are 437 employers submitting WSPs to the SETA. The figure below shows that the large majority of employers are in the alternative banking subsector (394 or 90%), with only 43 (10%) employers in the banking subsector.

Figure 7: Number and proportion of employers per subsector

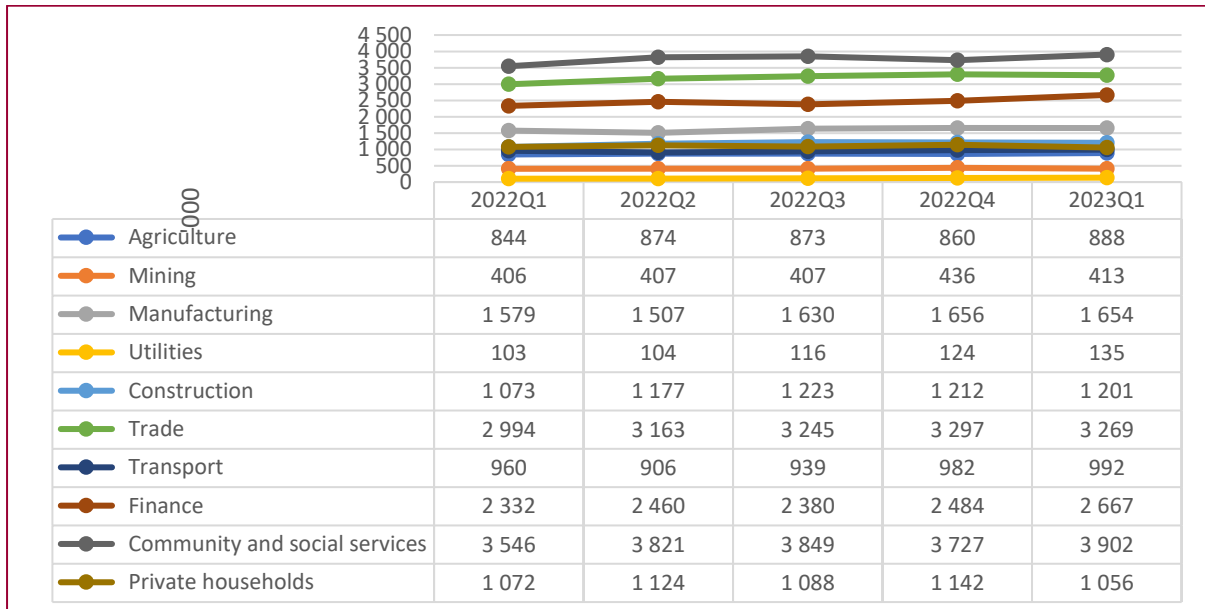


Source: BANKSETA WSP, 2022

5.1.4.1 Number of employees

In the South African economy, the sectors with the largest number of employees are community and social services, trade and finance.

Figure 8: Number of employees, 2022Q1-2023Q1

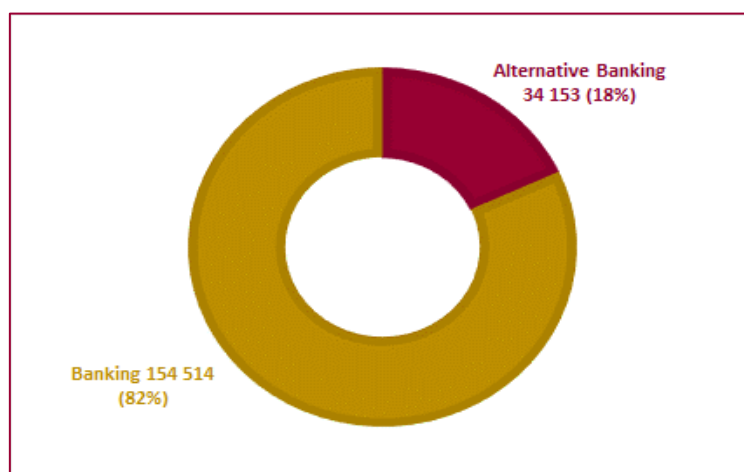


Source: StatsSA, 2023Q1

The number of employees in the finance sector ranged between 2.3 million and 2.7 million during the 2022Q1 and 2023Q1 period, reaching 2 667 000 employees in 2023Q1.

According to the BANKSETA WSP (2022) submissions, employers that submitted WSPs employ 188 667 workers. The figure below shows that the large majority of employees are in the banking subsector (154 514 or 82%) with only 34 153 (18%) employees being in the alternative banking subsector.

Figure 9: Number and proportion of employees per subsector



Source: BANKSETA WSP, 2022

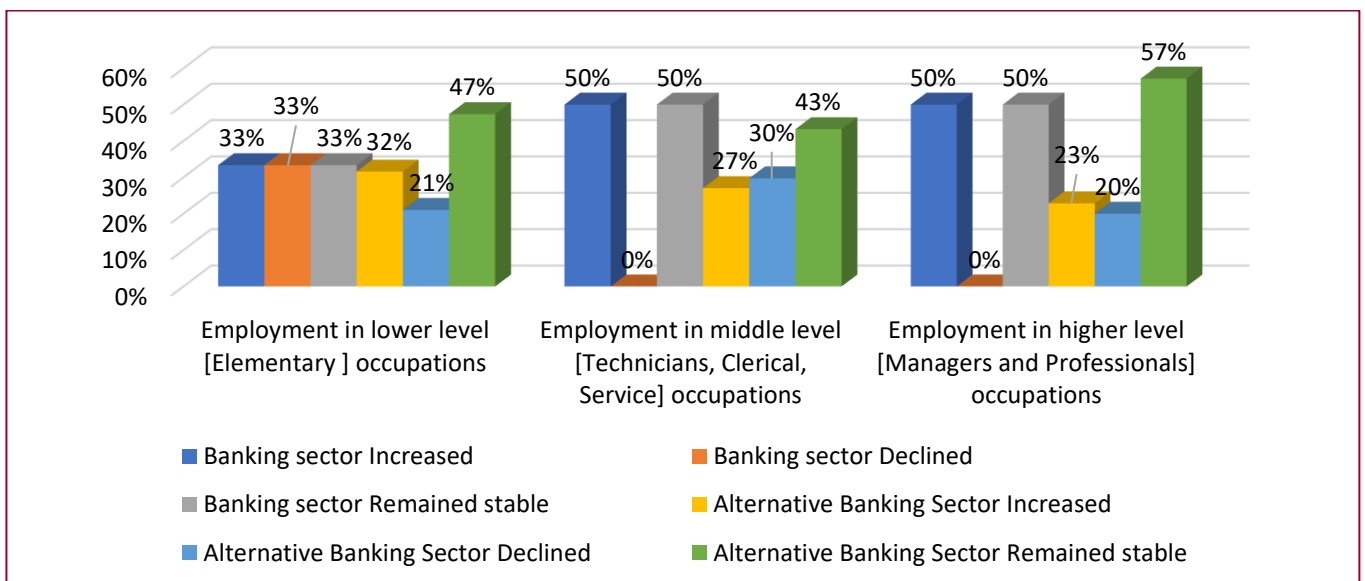
It should be noted that the bulk of the employers are in the alternative banking subsector, but the majority of employees are in the banking subsector, indicating that most employers in the alternative banking subsector are small and majority of employers in the banking subsector are large.

5.1.4.2 Employment trends

In terms of retrenchments, BusinessTech (2020) states that one of South Africa’s biggest banks, Standard Bank, closed more than 100 branches and retrenched hundreds of staff members as part of its efforts to digitise its retail and business bank in 2019. According to Smit (2022), Absa’s total employee numbers have fallen to 35 074 in the first half of 2022 from 39 763 during the same period in 2019. Fewer staff members now have jobs as tellers and most have multifunctional roles “as part of our data-led design for a future-fit branch network”. However, Daniels (2022) stated that these jobs can be replaced because with automation comes growth in employment opportunities surrounding the application of this technology. According to the author, there will always be a need for humans to interact with other humans, to create new things and solve problems, and have empathy for customers.

The figure below shows that survey respondents have a mixed view on the trends in employment over the past 5 years.

Figure 10: Change in employment in the last 5-years, banking and alternative banking sectors



Source: BANKSETA Survey, 2023

In lower-level occupations, an equal proportion of banking subsector employers indicated that employment either increased (33%), declined (33%) or remained stable (33%). Whereas alternative banking subsector stakeholders mostly think that it remained stable (47%).

In middle-level occupations, banking subsector employers indicated that employment increased (50%) or remained stable (50%), and most alternative banking subsector employers indicated that employment remained stable (43%) or declined (30%).

For higher level occupations, in the banking subsector, 50% of respondents indicated that employment increased and 50% indicated that it remained stable. In the alternative banking subsector, some

respondents indicated that employment in this category declined (20%), however the majority indicated that it either increased (23%) or remained stable (57%).

From the analysis, it seems that employment in lower-level occupations declined in the banking subsector (33%); and employment in middle-level occupations declined in the alternative banking subsector (30%) over the last 5 years.

Furthermore, in the survey, respondents were asked if technological advancements are displacing labour. Very few respondents in the banking subsector stated that it is – 16.7% (1 employer). This employer stated that Branch Managers and Consultants are being displaced at the bank. In the alternative banking subsector 40.9% of respondents indicated that technology is displacing labour. Of the 40.9% of respondents who indicated that technology is displacing labour, 66.7% of employers indicated that Data Entry Clerks are being displaced, 44.4% indicated that Consultants are being displaced, and 16.7% indicated Branch Managers are being displaced. Other occupations indicated include Payroll Clerks (5.6%), General Workers (5.6%), and Sales and Marketing personnel (5.6%).

Kokela (2022) states that the turn to digital banking will continue to threaten jobs, unless banks find ways to re-skill their current employees.

6 EMERGENCE OF NEW BANKING OCCUPATIONS IN SOUTH AFRICA

South Africa is not immune to the changes occurring in the banking sector. It is clear that if employees would like to remain in the sector, training and development is needed.

The table below is based on research conducted by Wits University (2019). It includes key skills change drivers, implication for skills development and policy, as well as highly sought occupations and skills in the sector. The skills change drivers summarise the 5 external pressures that are necessitating the need for new occupations in the banking sector in South Africa. These include: digitisation and technology, changing customer expectations, regulatory changes, risk and cybercrime, disruptors in banking, political, economic and societal shifts. These shifts in the banking space will influence education and skills through a requirement of specialised skills. For example, this is indicated in the table below with the digitisation and technology change driver which will require the skills of Analysts, IT systems architects, Software developers, Network specialists, Data scientists and data engineers as well as Robots engineers and technicians.

Table 3: Occupations needed in the sector

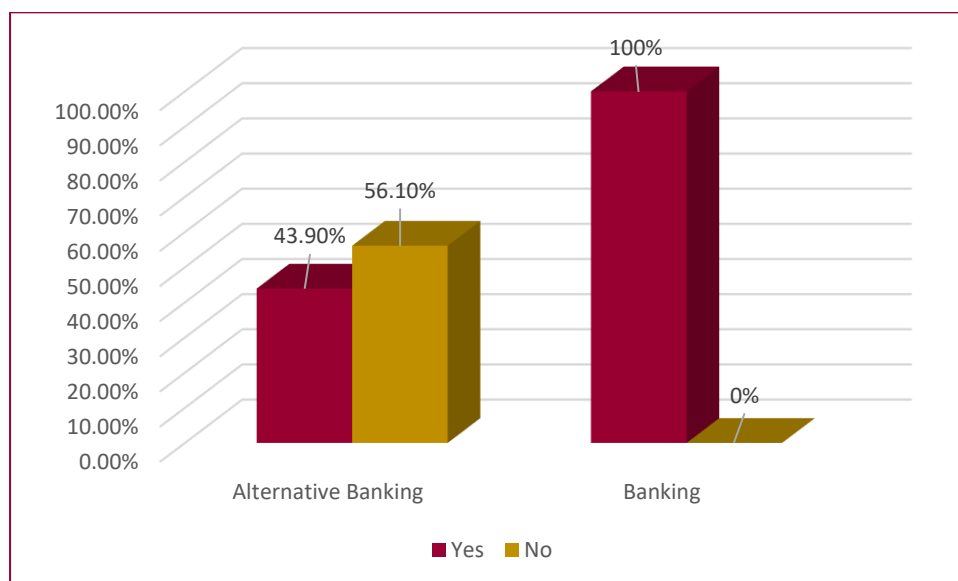
| Key Skills Change Driver | Implications for Skills Development and Policy | Highly sought Occupation/Skills |
|---------------------------------------|--|---|
| Digitisation and technology | <p>Skills</p> <p>There'll be both jobs/skills losses and opportunities</p> <p>Skills that will be in demand will be for high skills in computing technology</p> <p>Policy:</p> <p>Policy to support the development of appropriate and accredited digital short-courses and support for new suitable digitalisation tertiary degree.</p> <p>To better inform policy through evidence-based research, it is recommended that the quantitative impact of digitalisation on occupations is determined alongside qualitative multiple-criteria -such as investment in upskilling, retention of jobs etc.</p> <p>To ensure the digitalisation of the banking sector is a just transaction, policy needs to recognise the inclusion of women. See Annexure 1</p> | <ul style="list-style-type: none"> • Analysis • IT systems architects • Software developers • Network specialists • Data scientists and Data engineers • Robotics engineers and technicians |
| Changing customer expectations | <p>Focus on the appropriate ways to deal with customer queries and challenges.</p> | <ul style="list-style-type: none"> • Relationships consultants • Sales and Marketing Manager |

| Key Skills Change Driver | Implications for Skills Development and Policy | Highly sought Occupation/Skills |
|---|---|--|
| Regulatory changes, risk, and cybercrime | A greater skills and skills to develop a multi-disciplinary employee is important. It also important to develop skills for the Finetch within the banking sector in order for them to provide effective service to the banks. | <ul style="list-style-type: none"> • Chief Cyber Security Officers • A range of occupations in Cyber security • Compliance Officer • Skills Programme for Basel IV |
| Disruptors in banking | Agility skills and skills to develop a multi-disciplinary employee is important. It is also important to develop skills for the Fintechs within the banking sector in order for them to provide effective service to the banks. | <ul style="list-style-type: none"> • Complex Problem Solving • Management of Finance Resource • Service Orientation • Critical Thinking • Judgement and decision making • Management and Leadership • Time Management • System Analysis • Programming |
| Political, economic, and social shifts | Management and leadership ensuring that leaders possess skills to manage their teams in turbulent times ensuring they are capable of leading change within their work environment | <ul style="list-style-type: none"> • Corporate General Manager • Heads of Country • Chief Digital Officers • Chief Technology Officers |

Source: Wits University (2018/2019): BANKSETA Research Partner

In the survey, all banking subsector employers indicated that there are new and emerging occupations in the sector, whereas 43.9% of alternative banking subsector employers indicated that there are new and emerging occupations and 56.1% indicated that there are none.

Figure 11: Are there new and emerging occupations in the sector?



Source: BANKSETA Survey, 2023

It appears that new and emerging occupations are more apparent in the banking subsector than the alternative banking subsector.

Employers who indicated that there are new and emerging occupations in the sector selected the occupations in the table below:

Table 4: New and emerging occupations, % of employer responses.

| Occupation | Alternative banking N=17 | Banking N=5 |
|-----------------------------------|-----------------------------|----------------|
| Mixed reality experience designer | 17.65% | 20.0% |
| Algorithm mechanic | 5.88% | 0% |
| Conversational interface designer | 0% | 20.0% |
| Universal service advisor | 5.88% | 0% |
| Digital process engineer | 41.18% | 40.0% |
| Partnership gateway enabler | 11.76% | 20.0% |
| Solution architect | 23.53% | 20.0% |
| Blockchain architect | 23.53% | 20.0% |
| Machine learning specialist | 29.41% | 80.0% |
| Data engineer | 11.76% | 60.0% |
| Robotics Engineer | 23.53% | 20.0% |
| Robot Technicians | 11.76% | 20.0% |

| Occupation | Alternative banking N=17 | Banking N=5 |
|---|-----------------------------|----------------|
| Digital Organisational Reporting Officer* | 5.88% | |
| Building Technology Machinery* | 5.88% | |
| Corporate Writer* | 5.88% | |
| Mixed Reality Experience Designer* | | 20.0% |

Source: BANKSETA Survey, 2023

* The survey made provision for an "other, please specify" option. These occupations were entered by employers.

Digital process engineers, Solution architects, Blockchain architects, Machine learning specialists, Data engineers, and Robotics engineers are rising in importance in the sector.

The reasons given for these new and emerging occupations include digitisation and technology, changing customer expectations, greater security risk in the sector, and competition.

Table 5: Why are there new and emerging occupations in the sector, %of employer responses

| Reason | Alternative Banking | Banking |
|---|---------------------|---------|
| Digitisation and Technology | 76.47% | 80.0% |
| Changing customer expectations | 47.06% | 40.0% |
| Damage to banking infrastructure | 23.53% | 20.0% |
| Cost management | 11.76% | 0% |
| Greater security risk in the sector | 35.29% | 40.0% |
| Regulatory changes | 23.53% | 0% |
| The impact of Covid-19 pandemic | 29.41% | 20.0% |
| Competition from Banking/Alternative banking sector | 35.29% | 80.0% |
| Development of smart cities | 17.65% | 0% |
| Reporting requirements* | 5.88% | |

Source: BANKSETA Survey, 2023

* The survey made provision for an "other, please specify" option. These reasons were entered by employers.

Interviewees listed some occupations that are gaining in importance due to the changing technological environment. Some of the key points are listed below:

- AI is gaining more mainstream exposure in the banking and alternative banking sector. With it comes a rise in AI related occupations such as **data analysts, data scientists, AI programmers**, amongst others. Increasingly financial institutions are using AI to customise product offerings based on an analysis of customer data. Also, these institutions are using AI to manage risks. As one interviewee stated, "how do we manage large datasets that have become so prevalent in organisations, even more so in banks with access to this data, but actually to translate that data into value? And the value is around personalisation of experience, or detection of fraud, or more better managing risk, more behavioural aspects in terms of credit application scoring, etc" (Stakeholder interview, 2023).
- **Machine learning** is a new and upcoming occupation.

- **Blockchain** is becoming a bigger player in the way that banks are structured around decentralised ledgers and the ability to be able to create unique transactions or unique identifiers without having to trace it back – “So we are probably going to see some more needs over the next five to 10 years around blockchain” (Stakeholder interview, 2023).
- These changes create a greater challenge around risk management. **Risk manager** is not a new occupation, but employees will need to manage risk in an environment where there is blockchain for example, so skillsets will need to be updated. It “is not necessarily a new role, but it will be evolving more into the IT stream” (Stakeholder interview, 2023). One interviewee stated that “how do we think of regulatory compliance, risk management and how you manage complex regulatory and regulatory environments where we have got things like cryptocurrencies, new forms of capital, faster movement of money, alternative options coming through, become particularly important” (Stakeholder interview, 2023).
- With the move to AI, including blockchain technology, or cryptocurrency or digital currency, there is a bigger need for **cybersecurity personnel**. This is an evolving occupation because “what happened two years ago is fundamentally different to what it is like today” and as such employees need to be certificated often (Stakeholder interview, 2023).
- **Ethical hackers** will gain in importance. “Basically, they are hackers that come in and try and break your systems, but they do it by saying... hey, this is how we broke the system, or this is how we entered the system, and here are the areas where there are risks. If you pay me x amount, I will tell you how to fix it or I will tell you how I did this. So, you know those ethical hackers are probably something that we will see more and more of...so I think it has been around for a while. But I do not think we have leveraged it enough as we move into this digital space. It is going to be more and more of a requirement for us to test the security and protection of the information we have” (Stakeholder interview, 2023).
- **Cloud engineers.**
- Occupations around enhancing the customer experience is gaining in importance such as **customer relationship managers**, and **product developers** or **designers**. Elevating customer centricity and the user experience through design thinking. As an interviewee put it “building the right type of design elements into our services, into our offerings, in our products, into the ways in which we do things” (Stakeholder interview, 2023).
- Because of the push towards Environmental, social, and governance (ESG) in the sector, occupations in line with this is needed. One interviewee asked, “how do we build more sustainability understanding into our operations, in investment strategy, into our risk assessment, into our understanding of green technology?” (Stakeholder interview, 2023).

According to an interviewee, occupations such as **AI Robotics**, **Data analysts** and other technology occupations are not new, however, the technology behind those occupations are constantly evolving. As such, people employed within these occupations need to constantly be upskilled – “rather the skills underlying and how we actually approach upskilling who is actually currently in our organisation sitting in a role that is changing. As an example, an actuary. Actuarial science has become very much a focus area because of the sort of analysis of data, but the manner in which the actuary functions has changed.... And our client facing roles, we are expecting that client facing position that person to be able to advise on a variety of different things. Whereas in the past, we had specialists... the business

banking advisor, the personal banking advisory, the private banking... and we more and more are finding that we need that person that is a has a holistic approach” (Stakeholder interview, 2023).

Another example is around financial advisors. Because of the rise in “Crypto activities and Crypto financial products”, financial advisors need to be upskilled in how to advise clients in the crypto environment. Again, not a new occupation but rather a change in the way the job is done.

Also, legal personnel need to be upskilled to look at new technological developments from a regulation point of view. They will need to advise financial institutions on whether they are allowed to use certain technologies in terms of regulation.

Another stakeholder stated that auditing will change. The way in which information is audited in a digital and crypto currency environment is different to how it was done in the past, “because you cannot necessarily identify the specific transaction because each transaction builds on each other”.

One stakeholder explained “we have long had computers trading without humans, but they are trading against the rules as they are built into the algorithms. Now the computers are learning on their own and they are changing the rules without humans knowing what the changes are. Humans now need to understand what changes are being made underlying the algorithms that were initially programmed into the computer. So, the machine learning and understanding how that machine learning is happening, and the governance rules around it...And then the calculations of risks and trends is the old fashioned accounting understanding, reading the annual financial statements to see if there is value in a product, is really being replaced by predictive trends that big data can show in a way that we have not been able to do before. And that again, means that you need to understand differently” (Stakeholder interview, 2023). In sum, job functions are changing of existing occupations.

6.1 Skills Gaps and needs in the sector

A skills gap is the difference between an employee’s current abilities and the skillset best suited for their job. Many factors can contribute to skill gaps such as a lack of experience, inadequate training, poor recruitment, employee turnover, failures in the broader educational system or change in roles or responsibilities.

According to McKinsey (2021) redeployment with effective reskilling is 20% more cost-effective than “hiring and firing,” as it reduces the number of new hires and the number of layoffs needed. It also boosts an employer’s brand reputation by building a healthy employee value proposition marked by robust investment in people. However, to many HR leaders, reskilling has always seemed like a complex and lengthy process that requires a lot of preparation and shows impact only in the medium or long term, which has slowed its adoption by large organizations.

Amic (2022) states that many local banks have implemented upskilling and recruitment policies to ensure that their teams are up to date in their fields and can confidently lessen the impact of absent skills.

The table below shows the skills gaps in the banking and alternative banking subsectors and the number of employees with the skills gaps, as reported by employers submitting WSPs. A key skills gap for both the banking and alternative banking subsectors are Advanced IT and Software skills. Technical job specific skills are also important in both subsectors, as well as complex problem-solving skills,

management and leadership skills, skills in relation to legal aspects, governance and risk, as well as marketing and sales skills.

Table 6: Skill gaps in the banking and alternative banking sector

| Skills | Alternative banking | Banking |
|----------------------------------|---------------------|---------|
| Active Learning | 22 | 27 |
| Active Listening | 17 | 4 |
| Advanced IT and Software | 88 | 50 |
| Basic Computer (IT) | 52 | 13 |
| Communication (oral and written) | 38 | 13 |
| Complex Problem Solving | 80 | 207 |
| Coordination | 13 | 2 |
| Critical Thinking | 74 | 194 |
| Financial and Accounting | 41 | 3 |
| Installation | 1 | 4 |
| Instructing | 9 | 4 |
| Judgement and decision making | 14 | 11 |
| Learning Strategies | 35 | 51 |
| Legal, Governance and risk | 49 | 46 |
| Management and Leadership | 83 | 83 |
| Management of Finance Resource | 85 | 4 |
| Management of Material Resource | 11 | 4 |
| Management of Personnel Resource | 34 | 4 |
| Marketing and sales | 67 | 28 |
| Mathematics | 3 | 6 |
| Monitoring | 29 | 16 |
| Negotiation | 32 | 18 |
| Office administrator | 25 | 4 |
| Operation Analysis | 17 | 19 |
| Operation and control | 10 | 5 |
| Operation Monitoring | 12 | 3 |
| Persuasion | 21 | 14 |
| Planning and Organising | 31 | 4 |
| Programming | 24 | 28 |
| Project Management | 37 | 44 |
| Quality Control Analysis | 8 | 4 |
| Reading Comprehension | 5 | 2 |
| Science | 1 | 2 |
| Service Orientation | 36 | 15 |
| Social Perceptiveness | 3 | 26 |
| Speaking | 13 | 1 |
| System Analysis | 37 | 15 |
| System Evaluation | 1 | 1 |
| Teamwork | 24 | 7 |
| Technical (Job-specific) | 348 | 370 |

| Skills | Alternative banking | Banking |
|-------------------|---------------------|---------|
| Technology Design | 28 | 35 |
| Time Management | 58 | 8 |
| Troubleshooting | 12 | 4 |
| Writing | 21 | 9 |

Source: BANKSET WSP, 2022

Critical thinking skills is also key, but more so in the banking subsector than the alternative banking subsector.

Basic IT skills and Management of Financial resource skills are much more important in the alternative banking subsector than the banking subsector, as well as Financial and accounting skills.

According to interviews with stakeholders, the following skills are needed for the sector to advance technologically:

Actuarial science **Data science** **Regulatory skills**
Cognitive thinking skills **Critical thinking skills** **Problem-solving skills** **Machine learning skills** Skills around environmental sustainability (ESG goals) **Communication skills** **Strategic advisory skills** **Data management skills** **Data analysis** **Data modelling** **Data manipulation techniques** **Active listening skills**
Conflict management skills **Time management skills** **Big Data skills**
Ethics around new technology **Compliance and Regulatory skills**
STEM skills **Logical thinking skills** **Agility** **IT engineering skills**
IT architecture **Cybersecurity skills**

In comparing the skills needs with the skills gaps, it is clear that the sector has a problem.

Interviewees highlighted that mathematics is a requirement in the sector. And mathematics has been needed for a while, but according to stakeholders in the sector, we now need mathematics in a whole new way. “Because we now need it to understand the maths for algorithms, for coding, distributed ledger, technology and big data”, amongst others. Employees are watching the data and they need to understand the data - “you need to understand what the data is telling you and how the data is being pulled together” (Stakeholder interviews, 2023).

In addition, employees need to understand how to verify data properly and not just assume that the data is correct – “we are desperate, desperate, desperate to massify the mathematics interest... at the moment, the whole world is trying to get their head around machine learning, and the math algorithm and analytical thinking sitting behind that. And trust me, the financial markets, and that

includes insurance, traders, the asset managers, the compliance officers” (Stakeholder interview, 2023).

According to stakeholders, organisations developing quantitative analysts are drawing from undergraduate degrees, from engineering to economics to law to actuarial science. “But those are all already high analytical, high problem solving, high mathematical qualifications, and there is a shortage. And the answer cannot be in us all just competing, more fiercely for the same scarce resource” (Stakeholder interview, 2023).

6.2 Hard to Fill Vacancies in the sector

Hard-to-Fill-Vacancies (HTFVs) are defined as those that take longer than 12 months to fill with appropriately experienced and qualified candidates.

The table below lists the HTFVs in the banking and alternative banking subsectors and the number of people needed to fill the vacancies, as reported by employers submitting WSPs. These occupations are in line with some of the occupations identified in the literature as new and emerging in the sector. The key HTFVs impacting both the alternative and banking subsectors are: ICT Systems Analyst, Programmer Analyst, Software Developer, Applications Programmer, Computer Network and Systems Engineer, Network Analyst, and Technical ICT Support Services Manager.

Table 7: Hard-to-fill-Vacancies in the banking and alternative banking sector

| Hard to fill vacancies | Alternative banking | Banking |
|---|---------------------|---------|
| MANAGERS | | |
| 2019-132104 - Engineering Manager | 1 | |
| 2019-133101-Chief Information Officer | 3 | 3 |
| 2019-133102-ICT Project Manager | 16 | 2 |
| 2019-133103-Data Management Manager | 8 | 10 |
| 2019-133104-Application Development Manager | 5 | 10 |
| 2019-133105-Information Technology Manager | 15 | 9 |
| 2019-133106-Information Systems Director | 2 | |
| PROFESSIONALS | | |
| 2019-212101-Actuary | 3 | 14 |
| 2019-212102-Mathematician | 3 | 4 |
| 2019-212103-Statistician | 4 | 3 |
| 2019-214101-Industrial Engineer | 4 | 4 |
| 2019-214102-Industrial Engineering Technologist | | 1 |
| 2019-214402-Mechanical Engineering Technologist | 1 | |
| 2019-215303-Telecommunications Network Engineer | | 1 |
| 2019-216601-Digital Artist | 2 | |
| 2019-216603-Multimedia Designer | 3 | 4 |
| 2019-216604-Web Designer | 2 | |
| 2019-235601-ICT Trainer | 3 | |
| 2019-243402-ICT Business Development Manager | 7 | 10 |
| 2019-243403-ICT Sales Representative | 7 | |
| 2019-251101-ICT Systems Analyst | 43 | 26 |
| 2019-251102-Data Scientist | 9 | 9 |

| Hard to fill vacancies | Alternative banking | Banking |
|--|---------------------|---------|
| 2019-251201-Software Developer | 29 | 19 |
| 2019-251202-Programmer Analyst | 38 | 23 |
| 2019-251203-Developer Programmer | 11 | 9 |
| 2019-251302-Web Developer | 4 | 5 |
| 2019-251401-Applications Programmer | 34 | 19 |
| 2019-252101-Database Designer and Administrator | 10 | 7 |
| 2019-252201-Systems Administrator | 8 | 2 |
| 2019-252301-Computer Network and Systems Engineer | 37 | 21 |
| 2019-252302-Network Analyst | 34 | 16 |
| 2019-252901-ICT Security Specialist | 6 | 10 |
| 2019-252902-Technical ICT Support Services Manager | 35 | 21 |
| TECHNICIANS AND ASSOCIATE PROFESSIONALS | | |
| 2019-331401-Statistical and Mathematical Assistant | 1 | 1 |
| 2019-351101-Computer Operator | 1 | |
| 2019-351201-ICT Communications Assistant | 3 | 1 |
| 2019-351301-Computer Network Technician | 4 | 1 |
| 2019-351401-Web Technician | 3 | 4 |
| CLERICAL SUPPORT WORKERS | | |
| 2019-413201-Data Entry Operator | 1 | |
| SKILLED AGRICULTURAL, FORESTRY, FISHERY, CRAFT AND RELATED TRADES WORKERS | | |
| 2019-672203-Computer Engineering Mechanic / Service Person | 1 | |
| ELEMENTARY | | |
| 2019-862922-Electronics and Telecommunications Trades Assistant | | 1 |

SOURCE: BANKSETA WSP, 2022

The table below shows the HTFVs identified by survey respondents in the banking and alternative banking sectors. It is clear that the ICT related occupations are in high demand.

Table 8: HTFV, % of employer responses

| Occupations | Alternative Banking | Banking |
|---------------------------------|---------------------|---------|
| ICT Project Manager | 28.57% | 0% |
| Basic Computer (IT) | 32.14% | |
| Financial Manager | 17.86% | |
| Accounting Manager | 17.86% | |
| Data Management Manager | 21.43% | 50.0% |
| Marketing and sales Manager | 28.57% | 16.67% |
| Application Development Manager | 3.57% | 16.67% |
| Information Technology Manager | 10.71% | 33.33% |
| Information Systems Director | 3.57% | 16.67% |
| Actuary | 14.29% | 16.67% |
| Mathematician | 14.29% | 16.67% |
| Statistician | 7.14% | 16.67% |

| Occupations | Alternative Banking | Banking |
|--|---------------------|---------|
| Industrial Engineer | 0% | 16.67% |
| Industrial Engineering technologist | 0% | 16.67% |
| Mechanical Engineering Technologist | 0% | 0% |
| Telecommunications Network Engineer | 3.57% | 0% |
| Digital Artist | 7.14% | 0% |
| Multimedia designer | 3.57% | 0% |
| Web Designer | 7.14% | 16.67% |
| ICT Trainer | 10.71% | 0% |
| ICT Business Development Manager | 0% | 0% |
| ICT Sales Representative | 10.71% | 0% |
| ICT Systems Analyst | 7.14% | 16.67% |
| Data Scientist | 10.71% | 50.0% |
| Software Developer | 25.00% | 33.33% |
| Programmer Analyst | 10.71% | 16.67% |
| Programme developer | 17.86% | 16.67% |
| Web developer | 14.29% | 33.33% |
| Application programmer | 3.57% | 16.67% |
| Database designer and administrator | 10.71% | 16.67% |
| Systems Administrator | 10.71% | 16.67% |
| Computer Network and Systems Engineer | 7.14% | 16.67% |
| Network Analyst | 0% | 16.67% |
| ICT Security Specialist | 10.71% | 33.33% |
| Technical ICT Support Services Manager | 3.57% | 16.67% |
| ICT Communications Assistant | 0% | 0% |
| Computer Network Technician | 3.57% | 16.67% |
| Web Technician | 7.14% | 16.67% |
| Artificial Intelligence specialist | 3.57% | 33.33% |
| Cybersecurity specialist | 21.43% | 50.0% |
| Credit analysts | 14.29% | 16.67% |
| Compliance specialist | 21.43% | 0% |
| Cloud Computing specialist | 10.71% | 50.0% |
| Data scientist | 7.14% | 33.33% |
| Risk Management Officer | 21.43% | 0% |
| Applications programmer | 7.14% | 16.67% |
| Computer Network and systems engineer | 14.29% | 16.67% |
| ICT Systems Architect | 10.71% | 33.33% |
| Debt Counsellor* | 3.57% | |
| Associate* | 3.57% | |
| Securities Trading and Market Making* | 3.57% | |
| Senior Credit Risk Analyst* | 3.57% | |
| Anti Money Laundering Specialist* | 3.57% | |
| Valuation Officer* | 3.57% | |

Source: BANKSETA WSP, 2022

*The survey made provision for an "other, please specify" option. These occupations were entered by employers.

Data Management Managers, Software Developers and Cybersecurity Specialists are key HTFV in both the banking and alternative banking sectors.

During interviews, stakeholders state that there is a shortage of data engineering, data science and data analytics personnel. There is a need for people working in general technology related occupations, or people that work with the technology, for example, coders. And there is a need for people working in data related occupations. The sector has an abundance of data, so they need people that are able to work with the data.

According to stakeholders, there is also a need for business banking advisors that not only understands the banking and alternative banking sector but also the sector they are servicing for example the agricultural or energy sector.

In addition, there is a need for people working in risk related occupations including legal compliance, risk management and occupational risk.

Not having access to people with these occupations slows down the development of the business. The pace of development is compromised or as one stakeholder put it “it is slowing down the rate of change”. It also impacts the service to clients.

Also, innovation does not take place as it should – “there are so many golden nuggets that we could probably find with the abundance of data that we have, but with not having those skills readily available. It slows down our being able to process and analyse and come up with business decisions and business insights. Because we are not able to actually sift through that information and find those golden nuggets which would drive our business direction going forward... It is like a treasure chest; we have got different layers. We have opened up the treasure chest and we have got the top layer but we have got so many layers that we can go into further down that we are not able to access because of those skills shortages” (Stakeholder interview, 2023).

And as another stakeholder put it, “the inability to introduce your own products and solutions in this digital space is really constraining... at the moment, the ability to train your machines, and understand what is happening in that space and to interpret Big Data is the biggest constraint that any business in South Africa and the world is currently facing” (Stakeholder interview, 2023).

7 EDUCATION AND TRAINING PROGRAMMES FOR NEW OCCUPATIONS IN BANKING

With rapidly emerging new occupations in the banking sector, the education and training system is having to respond to address skills gaps. This section reviews the extent to which education and training is adapting qualifications to the needs of the banking sector.

7.1 Overview of Education, Training and Development

The Statistics on Post-School Education and Training (PSET) report (DHET, 2020) states that in 2020, there were 343 institutions in the PSET system. The 343 institutions are made up of:

- 26 public Higher Education Institutions,
- 124 private Higher Education Institutions,
- 50 Technical and Vocational Education and Training (TVET) colleges,
- 133 registered private colleges, and
- 9 Community Education and Training (CET) colleges.

Table 9: Overview of PSET and student enrolment, 2020

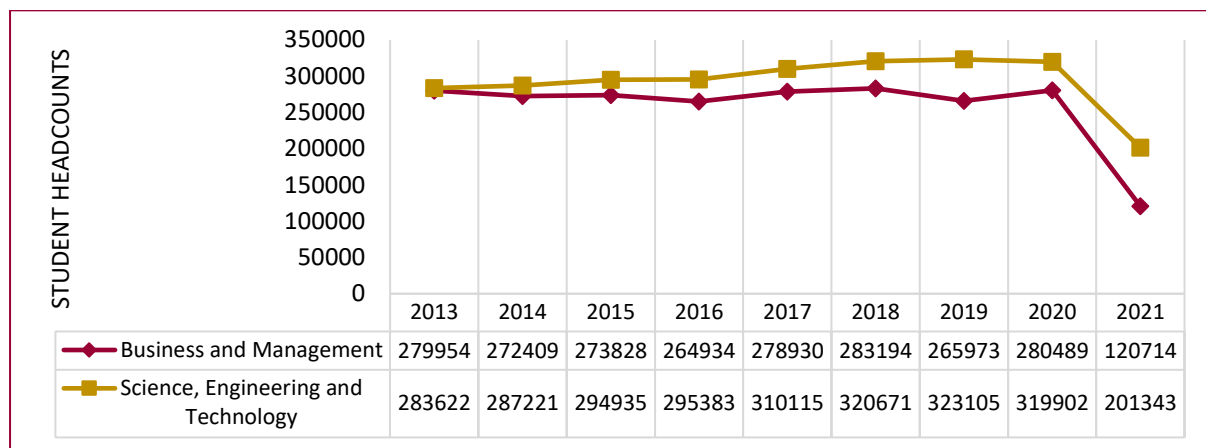
| | HEIs | | | Colleges | | | | Total PSET |
|---------------------|-----------|---------|-----------|----------|---------|---------|---------|------------|
| | Public | Private | Total | TVET | CET | Private | Total | |
| # institutions | 26 | 124 | 150 | 50 | 9 | 133 | 192 | 342 |
| # students enrolled | 1 068 046 | 232 915 | 1 300 961 | 589 083 | 143 031 | 85 787 | 817 901 | 2 118 862 |

Source: Statistics on PSET report, 2022

According to the BANKSETA SSP (2021), the “common fields of study that offer a supply stream for the banking sector are Bachelor of Commerce; Bachelor of Science: Actuarial/Financial Mathematics; Bachelor of Business Administration; Bachelor of Science: Engineering/Applied Mathematics/Computer Science; Bachelor/Master of Law: Corporate Law; Bachelor of Accountancy. There are in some cases intakes from Bachelor of Arts: Psychology and Bachelor of Social Science: Human Resources. The bulk of the supply falls within the business and management streams. In recent years, the sector has demanded graduates with a qualification in Information Technology, Mathematics and Statistics, Data Analytics, Programming, and Engineering”.

The figure below shows that after a gradual increasing trend in enrolments in SET and Business and Management subjects at HEIs between 2013 and 2020, there was a sharp decline in enrolments in 2021.

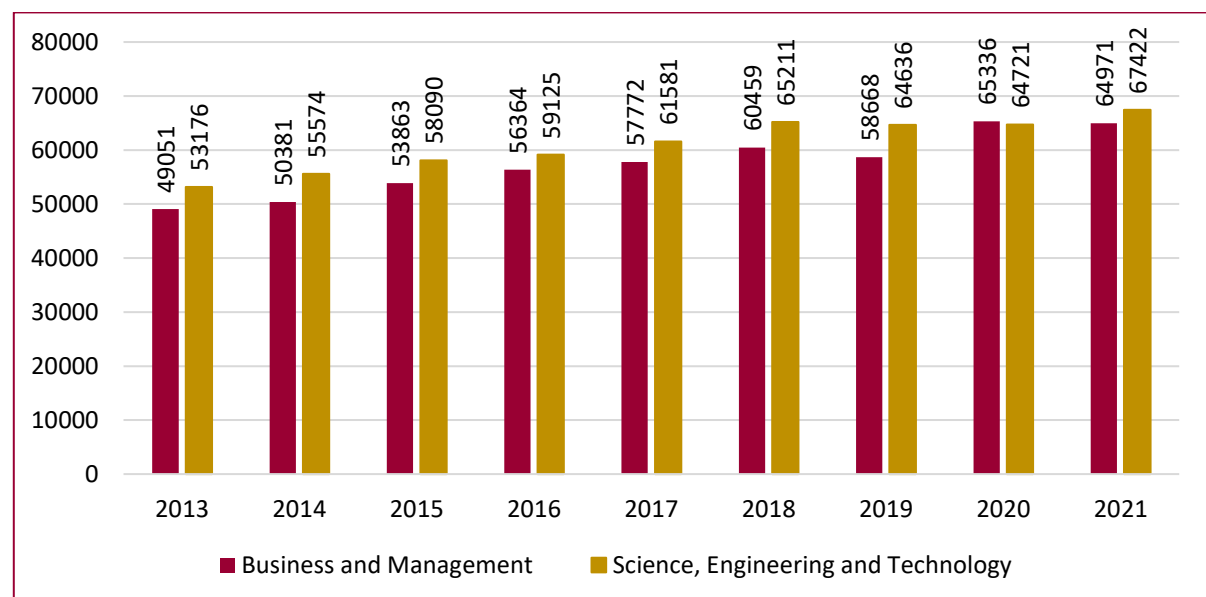
Figure 12: Number of students enrolled in public HEIs by major field of study, 2013-2021



Source: Statistics on PSET report, 2023

Completions from South African public HEIs in relevant subjects steadily increased between 2013 and 2021, indicating a general increase in the level of potential skills supply for the finance and accounting services sector.

Figure 13: Number of students graduated in public HEIs by major field of study, 2013-2021



Source: Statistics on PSET report, 2023

Interestingly, more Business and Management students complete their studies as opposed to Science, Education and Technology students.

There was an overall increase in enrolments in TVET colleges between 2020 and 2021, from 421 544 to 558 717 enrolments in TVET colleges.

The BANKSETA implements numerous programmes that link to qualifications required by the banking and alternative banking sectors. These qualifications are offered through the BANKSETA learnership programmes, bursaries, skills programmes, or work-based learning programmes. The tables below

provide information on the registrations and completions of BANKSETA funded programmes for employed and unemployed learners during the 2021/22 period.

Table 10: Number of workers and unemployed registered in SETA-supported learning programmes, 2021/22

| SETA | Learnerships | | | Skills Programmes | | | Internships |
|-----------------|--------------|------------|--------------|-------------------|------------|------------|-------------|
| | Workers | Unemployed | Total | Workers | Unemployed | Total | Unemployed |
| BANKSETA | 1 614 | 1 201 | 2 815 | 148 | 58 | 206 | 509 |

Source: Statistics on PSET report, 2023

The table above shows that in 2021/22, 2 815 learners registered in BANKSETA supported learnership programmes. This is significantly more than internships (509 learners) and skills programmes (206 learners).

The table below shows that total certifications in BANKSETA supported learning programmes is much lower than registrations. However, it should be noted that certifications in learnership programmes are more than registrations (1 646 certifications in 2021/22).

Table 11: Number of workers and unemployed certificated in SETA-supported learning programmes, 2021/22

| SETA | Learnerships | | | Skills Programmes | | | Internships |
|-----------------|--------------|------------|--------------|-------------------|------------|------------|-------------|
| | Workers | Unemployed | Total | Workers | Unemployed | Total | Unemployed |
| BANKSETA | 1 646 | 96 | 1 742 | 162 | 0 | 162 | 183 |

Source: Statistics on PSET report, 2023

According to BANKSETA (2022) the majority of the TVET colleges in South Africa have limited capacity to develop ICT skills required by banking and alternative banking. While some institutions offer computer courses these are largely at National Certificate Vocational (NCV) level and very few offer information technology programmes at National Accredited Technical Education Diploma (NATED) level.

7.2 Education and Training programmes that address new and emerging occupations in the sector

Numerous public and private further and HEIs offer programmes that are relevant to the identified new and emerging occupations in the sector. Some of them are provided below:

Table 12: Education and training programmes on offer, not at all inclusive list

| Name | Duration | Modules |
|--|---------------|---|
| Universities/ Higher Education Institutions | | |
| UNISA Course: Money and Banking | One Semester | Description: This module will be useful to students who are following or planning to follow a career in banking. It aims to give a unique understanding of the dynamic and evolving nature of the financial system and how it is related to the aggregate economy. This module offers discussions on theory, institutions, and policy as they relate to changes in the financial system, as well as an analytical foundation for understanding these changes. It is designed to introduce students to the study of money and banking as well as financial market analysis. |
| University of Johannesburg | Period varies | <ul style="list-style-type: none"> Certificate of Cyber security |

| Name | Duration | Modules |
|--|------------------------------------|--|
| | | <ul style="list-style-type: none"> Intelligent System Development (Using TensorFlow) 4IR online courses |
| Nelson Mandela University | Period varies/available on request | <ul style="list-style-type: none"> Management leadership programmes SETA accredited programmes |
| Private training providers | | |
| Johannesburg Institute of Engineering and Technology Course: Financial Management | One Semester | <ul style="list-style-type: none"> Personnel Management N4 Entrepreneurship and Business Management N4 Financial Accounting N4 Introductory Accounting N4 Management Communication N4 Business Communication N4 Computer Practice N4 Introductory Computer Practice N4 Economics N4 |
| Damelin School of Banking | 91 hours | <ul style="list-style-type: none"> Banking related direct selling techniques Bank products and services Product features, advantages and benefits to the customer |
| Chartall Business College | 10 months | <ul style="list-style-type: none"> Demonstrate an understanding of the functioning of the international financial markets within the South African context; Analyse and evaluate the financial markets Apply basic economic principles to the financial services sector. Enhance work practices within a treasury by the application of market knowledge in a banking environment; Identify the risk implications of trading associated within a treasury in a banking environment; Evaluate companies based on their financial statements <p>Electives:</p> <ul style="list-style-type: none"> Explain the structure and mechanics of Financial Markets; Demonstrate an understanding of the use of micro- and macro-economic indicators as forecasting and planning tools within the financial markets; Operate within the ethical, professional and legal limits of the South African and international legislation and codes of practice regulating the financial markets; Identify and control risk within the financial markets; Complete and submit reports within the financial markets sector as required by legislation and by company policy; Calculate and analyse investment performance |
| Milpark Education Course: Higher Certificate in Banking Services | 1 year | <ul style="list-style-type: none"> Regulation and Compliance in the Banking Industry Fundamentals of Retail Banking Customer Service and Communication Introduction to Sales Fundamentals of Economics Introduction to Business Management Personal and Small Business Credit Principles of Accounting Fraud Detection |

| Name | Duration | Modules |
|---|-----------------------|---|
| The Sherq Centre of Excellence (Pty) Ltd | 12 hours | <ul style="list-style-type: none"> • Introduction to 4IR and Digital Banking Online • Philosophy of AI Phase 1 • Philosophy of AI Phase 2 |
| Walt Productions (Pty) Ltd t/a Ethics Africa | 18 hours | <ul style="list-style-type: none"> • Financial Intelligence Centre Act • Financial Services Debarment Process • Regulations of the Financial Sector in South Africa • New Regulatory Structure of the FSCA |
| Growth in Motion Pty Ltd | 16.5 hours | <ul style="list-style-type: none"> • Economic, Social and Governance (ESG) considerations. • Digital Communication in the FAIS environment. • Common Advisor concerns and how to face them. • Leveraging tech for a better client experience. • Alternative Investments. • Forex Investments. |
| Duke Corporate Education | Available on requests | The organisation offers custom made training programmes. Designed in collaboration with clients in the sector. |
| Novia One | 12 Months | Financial Markets & Instruments. |
| SACOB | | <ul style="list-style-type: none"> • Professional qualifications and short courses • Administration • Bookkeeping • Accounting • Business Management • Chartered Secretary • Entrepreneurship • Financial Analysis |
| The Learning Organisation | Period varies | Short courses in IT, business, management, marketing and finance |

In addition to the list above, in the quest to integrate digital skills knowledge into the current TVET college programme offerings, the DHET has partnered with CISCO and HUAWEI to update the existing curriculum to align with industry demands in the digital skills area. Furthermore, there is a new stream focusing on Robotics in the NCV: Information Technology and Computer Science programme which previously only focused on programming and systems development. The Minister of Higher Education, Blade Nzimande (2022) added: “under the CISCO agreement, at least 300 lecturers are being trained in our 50 TVET Colleges to upgrade their skills on Information Communication Technology (ICT) related NC(V) qualifications”. Under the HUAWEI agreement, lecturers currently at 32 TVET colleges are being trained to support the introduction of subjects such as Routing and Switching, Big Data, Artificial Intelligence, WLAN, and Security and Cloud Computing (DHET, 2022).

According to interviewees, employers provide in-house training to upskill employees. Often these take the form of structured programmes. In addition, employers provide bursaries and scholarships to unemployed and employed individuals to complete education and training programmes.

Industry associations provide education and training to graduates in the sector often in the form of structured internship or graduate development programmes.

7.2.1 Relevance of Education and Training Programmes

During interviews, a stakeholder stated that their organisation only recruits tertiary education graduates and above. These graduates are recruited into internship positions or graduate

development programmes. So, graduates coming from tertiary institutions are not ready to become independent employees at their organisation. These graduates need to undertake structured development programmes first.

This is supported by another stakeholder who stated that “people are recruiting at a post grad level and not at the bachelor’s level. And that is because their bachelor's level is not sufficiently positioning”.

According to the stakeholder, graduates coming into the system are not “adequately prepared”, mostly in work readiness. This is why internships and graduate development programmes are key. As the stakeholder put it “introducing programmes like your graduate development programmes and your internships, is really assisting us to inculcate or instil professional values that we want our graduates to come with, so they do not come really well rounded. You need to provide top up skills in a form of any feeder programme” (Stakeholder interview, 2023).

In terms of technical capabilities, according to the stakeholder, graduates come prepared in “traditional” qualifications but not in “futuristic” qualifications. These qualifications are in the areas of data analytics – “you do not have a sufficient pool to recruit from when you look at the ICT environment, particularly in the engineering side of things...and cybersecurity issues” (Stakeholder interview, 2023).

However, an industry association representative stated that tertiary institutions put in the effort to stay relevant. The stakeholder stated that “they (University) have tried to reevaluate the programme all the time... they already have things like BLT in the syllabus, they have got financial maths that is looking at AI and machine learning as part of it, they are looking to partner with the IT department computer science departments. They know what they have got to do... they are adding more predictive and new thinking into maths. They know they have to. I do not think historically, there was such a thing as a financial risk management honours, that looks specifically at quantitative analysts development. I think these are all new qualification so that academics are stepping up” (Stakeholder interview, 2023).

According to education and training providers, their programme offerings are relevant. This is because they constantly review their programme offerings to stay updated with the rapidly changing technological environment. Programme reviews often involve academics and industry to ensure that programmes are in line with industry requirements.

In addition, to keep up with the changing times, education and training providers have shifted their mode of delivery to various extents. Some have completely gone virtual whilst others have a mix of face-to-face and online programme offerings.

Some education and training providers stated that programmes that are increasing in importance are around compliance/operational and risk management because of the increased risk brought on by technological transformation; relationship banking because of the increased need to be client centric; courses on FinTech and innovation in the sector; management courses such as agile leadership, authentic leadership, and performance management; digital marketing analytics; cybersecurity; AI for business professionals; amongst others.

7.2.2 Challenges in the Education and Training system

Stakeholders in the sector highlight that too few people undertake STEM disciplines. Too few learners at schools choose to complete STEM related subjects. Then too few students enter these subjects at Universities and other education institutions and then ultimately significantly less than required

graduates enter the sector to be upskilled and gain the necessary experience by employers. As one interviewee puts it - “the kids are filtered out of from STEM disciplines at school and then whoever is left they start failing at university and then we end up with a small group of individuals that we are able to tap into from a talent perspective. We do offer training, but we need those STEM disciplines in place and established before we can actually work with that employee in terms of the gaps that we find” (Stakeholder interview, 2023).

Another stakeholder stated that “making those kind of subjects compulsory would be a way for us to be able to change the way people think”. According to the interviewee employees must be able to understand how to solve a problem - “you get put in front of you a specific formula, and you have got to solve for x or y. It changes the way you think and your approach to issues. It gives you different ways to be able to solve the equation” (Stakeholder interview, 2023).

When asking one interviewee where South Africa’s greatest weakness is, the interviewee stated “Analytical thinking and mathematics and secondary schooling” (Stakeholder interview, 2023).

In support of this, another stakeholder stated that currently in South Africa there is “a major pipeline channel problem. You cannot put a million people into a system and get 2 out of higher education... 7754 matriculants, with a distinction in maths to feed into higher education pipeline is just not sustainable”. And then these matriculants are split between a range of qualifications such as medicine, computer science, and actuarial science, amongst others. The stakeholder stated that what further complicates this problem, is that students end up doing degrees that are funded as opposed to what is needed.

Thus, there is a need to “get more people through university because at the moment only 27% are getting through in minimum time”. This negatively impacts businesses in the sector as they are not recruiting the required number of people. A stakeholder emphasised that “34% of our members in May this year say they have not managed to fill the graduate entry level jobs in May (and this is not happening for 10 years.... not a new thing). Another stakeholder stated that “they (businesses) are at the moment competing fiercely for those few numbers” (Stakeholder interview, 2023). The same stakeholder stated that there is “a bank that has got two strategic programmes for recruitment. The one is the CA programme... and the second one is for quantitative analysts. And I think they have got 60 positions and I think they are lucky if they fill 5 or 10 of them”. (Stakeholder interview, 2023).

Clearly, the skills needed for the current technological transformation taking place in the banking sector is not available in the required quantities nationally, with one stakeholder stating that it is “scarce both from a local and global perspective, specifically in the IT space” (Stakeholder interview, 2023). Another stakeholder stated that “there is quite a seismic shift in the way in which business is conducted in the financial market, and that is requiring a new breed. And that new breed does not exist. At least not sufficiently” (Stakeholder interview, 2023).

According to stakeholders, the transition from school to tertiary education and from tertiary education to the work environment is hard. The first year at university is a shock which increases dropout rates. Also, the transition from tertiary education to the work environment is challenging for employees, specifically in relation to soft skills. Soft skills such as “how to influence, how to position yourself, how to speak, what to say, how to say things, just the kind of workplace etiquette, is something that we find missing... secondary and tertiary education needs to shift for us to be able to build the skills we need in the future” (Stakeholder interview, 2023).

One training provider stated that it is a challenge to keep people's attention during courses – "Throughout the process. It seems that attention spans are shorter, and I think it is from wellness and general exhaustion because of the pace at which things are moving and just the volume of things that happening when at the same time". Another challenge for providers is internet connectivity. Many of them went online, and coupled with loadshedding schedules, students are not able to complete assessments. They are experiencing a low pass rate for online assessments.

Stakeholders noted that poaching happens in the banking sector. Whilst employer and industry associations realise the importance of upskilling employees in the sector, they are also aware of the increased cost and waste of time associated with upskilling employees who leave shortly after completing their training. One stakeholder stated that "the interesting thing is that, in my experience, the banks are building new and emerging skills. And the management consultants are not keeping up with it. And therefore, they are having to hunt and steal and borrow and take from industry, from the banks" (Stakeholder interview, 2023).

In addition, experienced professionals are emigrating which causes businesses to lose key skills. Also, experienced people are retiring. According to a stakeholder, this is a challenge in the tertiary education sector as maths academics are retiring – "their biggest problem is that they cannot retain maths academics".

8 CONCLUSION AND RECOMMENDATIONS

The advent of alternative banking has brought about a large scale of innovation across the globe, which has led to the closing and downscaling of physical branches locally. Although the subsectors face many of the same challenges, traditional banking has the advantage of regulation and customer loyalty. In contrast, alternative banking is presented with the threat of risk and cybercrime without regulation. However, alternative banking has the advantage of providing solutions and products at a faster pace than traditional banking.

The rapid wave of digitisation and other change drivers present many factors to consider for the banking and alternative banking subsectors. These changes are beneficial for consumers as they are tailored towards customer needs, with the advantage of quicker resolutions. However, for bankers and prospective finance graduates, there is the potential for job losses and opportunities for them to upskill and reskill according to the new needs of the sector. This presents an opportunity for new and emerging occupations in the sector. In this research, we have discovered the following new and emerging occupations:

- Mixed reality experience designer
- Algorithm mechanic
- Conversational interface designer
- Universal service advisor
- Digital process engineer
- Partnership gateway enabler
- Solution architect
- Blockchain architect
- Machine learning specialist
- Data engineer
- Robotics Engineer
- Robotics Technician
- Digital Organisational Reporting Officer
- Building Technology Machinery
- Corporate Writer

The research finds that two main obstacles block people from attaining qualifications or relevant training that will enable them to be absorbed into new and emerging occupations. Firstly, these new and emerging occupations require employees with STEM-related qualifications, and the higher institutions of learning are still not in a position to supply the necessary amount of STEM graduates that are demanded by the sector, primarily because there are not enough learners with STEM subjects from secondary schooling. Secondly, the country still needs more technology to teach or train people to be skilled and competent in these new and emerging occupations.

8.1 Recommendations

It is recommended that the BANKSETA fund education and training programmes in line with the new and emerging occupations identified in the sector.

Furthermore, the BANKSETA should ensure that qualifications are in place by accelerating the development and registration of required qualifications to meet the demand for new and emerging occupations. Partnerships should be considered to develop and register relevant qualifications.

Both unemployed as well as existing employees need to be upskilled in the new and emerging occupations in the sector. During the research it was found that generally larger employers are in a better position to provide funding to upskill employees as opposed to smaller employers. It is recommended that the SETA supports small employers in the sector with access to skills development opportunities.

Also, the BANKSETA can address the uptake of STEM subjects in schools, which has been identified as a critical obstacle to attracting the necessary quantity for qualifications within the banking sector. The SETA should go into schools with career awareness initiatives to provide information on skills needed for occupations in demand and what the new and emerging occupations look like to advise on the importance and relevance of STEM subjects. A step further could also entail direct support from BANKSETA by providing support classes to schools in STEM subjects, such as Mathematics and Science.

A key finding was the technology backlog the country is experiencing. Investment in technological infrastructure is needed for education and training providers to train people in new and emerging occupations. It is recommended that the BANKSETA be an investor.

REFERENCES

- Ambhire, V.R., Teltumde, P.S. (2011). Information Security in Banking and Financial Industry. *International Journal of Computational Engineering & Management*, Vol. 14: 2230-7893.
- Amic, J. (2022). *Closing the skills gap in banking*. Available Online: [Closing the skills gap in banking - MasterStart](#). [Accessed February 2023]
- Bagheri, J., Daryani, S.M., Ardabili, F.S., Ahmadi, M., Azadi, B. (2021). A General Management Skills for the Hierarchy of Bank Managers. *International Journal of Organizational Leadership*, Vol. 10: 459-474.
- Bank for International Settlements. (1999). The Monetary and Regulatory Implications of Changes in the Banking Industry. BIS Conference Papers: Vol.7 March 1999.
- Bank Seta. (2021). *Sector Skills Plan 2022/2023*. Available Online: [Sector-Skills-Plan.pdf \(bankseta.org.za\)](#). [Accessed January 2022]
- Blakey, D. (2022). *Over 100 banking and payments experts share sector forecasts for 2023*. Available online: [banking and payments 2023 \(retailbankerinternational.com\)](#). [AccessED February 2023].
- Business Tech. (2020). *Standard Bank on closing branches: We can't stop the progress of technology*. Available online: [Standard Bank on closing branches: We can't stop the progress of technology \(businesstech.co.za\)](#). [Accessed January 2023].
- Cabrita, M.R., Bontis, N. (2008). Intellectual capital and business performance in the Portuguese banking industry. *Int. J. Technology Management*, Vol. 43: 212–237.
- Carbó Valverde,S. (2017). “The impact on digitalisation on banking and financial stability.” *Journal of Financial Management, Markets and Institutions* 1 (2017): 133 140.
- Chebii, M. (2013). *Kenya Commercial Bank and SME banking alternative channels*. Available online: <http://smefinanceforum.org/post/kenya-commercial-bank-and-sme-banking-alternative-channels-by-milkah-chebii-from-kcb> [Accessed February 2023].
- DHET. (2022). *Minister Nzimande pleased with progress on 4IR interventions within the Post-School Education and Training sector. Media Statement*. Available online: [Microsoft Word - Document1 \(dhet.gov.za\)](#). [Accessed February 2023].
- DHET. (2022). *Annual Performance Plan 2022/2023*. Available online: [Department of Higher Education and Training APP 2022-23.pdf \(dhet.gov.za\)](#). [Accessed February 2023].
- Ditse, Z. (2020). *Bridging the skills gap in the financial industry: Uncovering the skills that banks require in the future world of work*. Available online: [Ditse Bridging 2020.pdf \(up.ac.za\)](#). [Accessed February 2023].
- Dua, A. (2022). *How Banking as a Service (BaaS) unlocks opportunity for the banking sector*. Available online: [benefits to banks that embrace BaaS \(retailbankerinternational.com\)](#). [Accessed February 2023].

- Faridi, A., Baloch, A. (2019). Training and Development Methods affecting Professionalism and Empowerment of Banking Sector Employees. *Journal of Management Sciences*, Vol. 6 (2): 75-92.
- Federal Ministry for Economic Affairs and Climate Action. (n.d). *Financing for start-ups, company growth, and innovations*. Available online: [BMWK - Financing for start-ups, company growth, and innovations](#). [Accessed February 2023].
- Funcas. (2021). *The Future of Banking Jobs: A Sector in Transformation*. Available online: [Banking-Jobs-in-transition-WEB-1.pdf \(funcas.es\)](#). [Accessed January 2023].
- FSCA. (2021). *Alternative Finance Trends in South Africa and the Implications for Financial Regulators*. Available online: [Alternative Finance Activities in South Africa.pdf \(fsc.co.za\)](#). [Accessed January 2023].
- Godoy, K. (2018). *Leaders in Emerging Markets: Exploring Mexico's future in finance and technology*. Available online: [Emerging Markets: Exploring Mexico's future in finance and technology | BusinessFeed \(cornell.edu\)](#). [AccessSED February 2023].
- Hackel, M. (2014). *Upgrading training in the Banking sector: Design perspectives within the context of the German Qualifications Framework*. Available online: [Federal Institute for Vocational Education and Training \(BIBB\) - Germany](#). [Accessed February 2023].
- Heorhiadi, N., Druhov, O., Vilhutska, R., Bets, M., Stoianovskyi, A., Folwarski, M. (2018). Organisational development in banks management systems. *Banks and Bank Systems*, Vol. 13(3): 1-11.
- IMF. (2022). *Countries in the IMF Financial Stability Spotlight in 2022*. Available online: [Countries in the IMF Financial Stability Spotlight in 2022](#). [Accessed February 2023].
- IMF. (2022). *Germany Financial Sector Assessment Program*. Available online: [1DEUEA2022007.pdf](#). [Accessed February 2023].
- IMF. (2022). *Mexico Financial system Stability Assessment*. Available online: [1MEXEA2022002.pdf](#). [Accessed February 2023].
- IFWG. (2021). *The intergovernmental Fintech Working Group publishes a research document regarding Fintech digital platforms*. Press Release. Available online: [IFWG Fintech Digital Platforms Press Release.pdf](#). [Accessed January 2023].
- Isiaka, S.B. (2011). Motives for Training and Management Development in the Nigerian Banking Industry. *Asian Social Science*, Vol. 7: 210-219.
- Duval, R. Ji, Y., Shibata, I. (2021). *Labor Market Reform Options to Boost Employment in South Africa*. *IMF Working Paper: Research Department*. Available online: [wpiea2021165-print-pdf.pdf](#). [Accessed February 2023].
- Hu, H., Jadoul, Q., Reich, A. (2021). *How banks can build their future workforce—today*. Available online: [How banks can build their future workforce--today | McKinsey](#). [Accessed February 2023]

- Jivan, A.M. (2017). *Towards an integrative framework of leadership development in the South African banking industry*. A thesis submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand. Johannesburg: South Africa. In fulfilment of the requirements for the degree of Doctor of Philosophy (PhD).
- Jivan, A.M. (2020). A case study of the evolving management of leadership development in the retail banking sector. *SA Journal of Human Resource Management/SA Tydskrif vir Menslikehulpbronbestuur*, 18(0).
- Jenkin, N., Naude, R. 2018. *Developing Competencies for a Just Transition of the South African Banking Sector: Digitalisation*. Available online: [Digitalisation - Banking - Jenkin.pdf](#). [Accessed February 2023].
- Mabey, C. (2007). *Management and Leadership Development*. SAGE Publications. London.
- Maharaj, S., Poee, R. (2021). Overcoming challenges associated with managing change towards Digital Banking – a case of a South African bank. *Journal of Contemporary Management*, Vol. 18(1): 70-92.
- McKinsey and Company. (2018). *Corporate and investment banking in Mexico: Delivering value through new models*. Available online: [cib-in-mexico-delivering-value-through-new-models.pdf \(mckinsey.com\)](#). [Accessed February 2023].
- Mthelebofo, R. (n.d). *The Financial Sector Outlook Study: Key developments and trends in the South African banking sector*. Available online: https://www.fsca.co.za/TPNL/FCSA_NEWSLETTER_2022/Outlook-Study.html#:~:text=Key Trends and Developments in. Accelerated digitalisation of the industry. [Accessed February 2023].
- Nwagwu, I. (2020). *Driving sustainable banking in Nigeria through responsible management education: The case of Lagos Business School*. Available online: https://www.sciencedirect.com/science/article/abs/pii/S1472811719300990?casa_token=58jiD124jscAAAAA:KXlxv2VB8oHpMq-Xg3PtW1AaHg9uJevt0rd1gVJ5HWpTRZXIAm-sCvhtbLHkecfpyJL3npQQ [Accessed January 2023].
- Oliver Wyman. (2018). *Banking Report Germany 2030: How to Become one of 150 German Banks With A Viable Business Model*. Available online: [BankingReportGermany2030.pdf \(oliverwyman.com\)](#). [Accessed February 2023].
- Otoo, F.N.K. (2019). Human resource development (HRD) practices and banking industry effectiveness: The mediating role of employee competencies. *European Journal of Training and Development*.
- Panzaru, S. (2011). Strategic Management in Commercial Banks. *Review of General Management*, Vol. 14 (2): 122-129.
- Pikulinski, J. (n.d). *New Emerging Occupation*. Available online: [New and Emerging Occupations \(bls.gov\)](#). [Accessed January 2023]
- Sakshi, A. (n.d). *Methods of Management Development*. Available online: <https://www.economicdiscussion.net/human-resource-management/methods-of-management-development/31735> [Accessed January 2023].

South African Reserve Bank. (n.d). *The SARB provides insight into disruptive innovation in financial services*. Available online: [Fintech \(resbank.co.za\)](https://www.resbank.co.za/fintech). [Accessed January 2023].

StatsSA. (2021). Quarterly Labour Force Survey, Quarter 1: 2021. Available online: [P02111stQuarter2021.pdf \(statssa.gov.za\)](https://www.statssa.gov.za/P02111stQuarter2021.pdf). [Accessed February 2023].

World Economic Forum. (2020). *The Future of Jobs Report 2020*. Available online: [WEF Future of Jobs 2020.pdf \(weforum.org\)](https://www.weforum.org/reports/the-future-of-jobs-report-2020). [Accessed February 2023].