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PILOT STUDY REPORT (TOPIC 2)

Barriers to skills development contribution to the
transformation of the banking and alternative banking
sector

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EXECUTIVE SUMMARY

The project is a BANKSETA funded research project between CPUT and BANKSETA. This document is a preliminary progress report on Topic 2 (*Barriers to skills development contribution to the transformation of the banking and alternative banking sector*) for the period 2021-2022.

The findings here are only based on data collected on a pilot study basis thus, does not give a comprehensive finding on the entire study. This preliminary report findings were purely based on qualitative data (interviews). It is a snapshot of the final findings, but it is noteworthy to state that it cannot be generalised at this moment since the final study is still ongoing.

This report presents the progress or milestones achieved since implementation to the data collection phase, and the challenges encountered from implementation to date. The project was started in 2021. The implementation plan was centred on the two (2) topics both under Group A. This preliminary report is on one part (i.e., Part B for topic 2), focused on the thematic areas in the implementation plans.

PART B (Topic 2): Barriers to skills development contribution to the transformation of the banking and alternative banking sector



The literature review presents the drivers of transformation in the banking sector as FinTech, regulatory pressure, and changing consumers' preferences. Digital transformation strategies include use and exploitation of technology, changes in value creation (firm's value chain), structural changes (incorporation of new operations to existing structures) and finance a digital transformation endeavour.

For the barriers to digital bank transformation, the following were the key concerns:

Insufficient relevant qualifications of employees, not enough people in the market for IT vacancies to enable digital transformation, innovators dilemma, productivity effect, and customers afraid of misuse of remote banking services, disclosure of personal information, passwords, and logins. Focusing on digital transformation, some of the major barriers are, sunk cost effect, replacement effect, efficiency effect, bureaucracy and politics, perverse incentives, risk averse and/or fear culture.

However, some solutions suggested included:

- 1) design characteristics of organisations should match the demands of their environments and
- 2) organization with the exploit-explore balance and seamless business-IT fusion cope better.



Barriers to skills development contribution to transformation:

In South Africa, the following were the challenges affecting development issues in the country:

- 1) Mismatch between demand and supply of e-competences whether in knowledge, skills as well as in attitudes,
- 2) Universities not providing the capability of the sort of skills needed in the digital area,
- 3) Poor access to technology skills,
- 4) Existing tech skills lacking depth,
- 5) Brain-drain around success where local FinTech's compete fiercely with Google and Amazon, and,
- 6) Fit gap founds between the current skills of ICT professionals and the supply of appropriately skilled ICT graduates by education institutions (NCVIT, TVET).

The much-needed skills in the country vary but not limited to programming, machine learning, robotics, coding, analytical and quantitative skills, collaboration, communication, problem-solving, social and emotional intelligence, agility as critical hard and soft skills of the future. The following were proposed as solutions.

- 1) Experiential learning or learning through simulations.



- 2) Industry and institutions of higher learning work together to bridge the skills gap.
- 3) Such skills are required to be taught to act as a foundation of future skills.
- 4) Higher education develops a sense of innovation and implement collaboration practices, and,
- 5) accreditation of university and curriculum, employers' participation in curriculum development and work-based learning.



PILOT STUDY – TOPIC 2

Barriers to skills development contribution to the transformation of the banking and alternative banking sector

BANK TRANSFORMATION

Banks as we know them are an integral part of every economy. As Omarini (2017) put it, banks are the major source of credit thus act as a haven for depositors' wealth (Mettenheim and Butzbach, 2012). In addition, banks provide financial and banking products to small businesses and consumers and wholly rely on fees, proprietary products and interest rates for their operation and survival (Omarini, 2017). But with new competitors such as the financial technology startups (FinTechs), technological innovations have advanced due to changes in customers behaviour and attitudes as well as the proliferation of financial products and services. Omarini (2017) posits that with the changes taking place in the banking and finance sector, banks have become a provider of financial services and products rather than an enabler.



FinTechs according to Alt, Beck, and Smits (2018) provide secondary markets or alternative banking where financial service providers (such as investment bankers, commercial banks, mortgage brokers) interact together. In addition, the term 'FinTech' by Alt et al. (2018) represents all applications that use analogue though primarily digital information technology (IT) to provide financial solutions. Continuing, FinTech incorporates a wider variety of innovation, ideas and new business models that are powered by digital technologies.

In the same vein, alternative banks or banking operate like traditional banks but differ in governance, ownership, and organisation. For example, Mettenheim and Butzbach (2012) lists alternate banks to include mutual guarantee associations, cooperative banks, development or special purpose banks, credit unions and savings banks. In explaining alternative banking, Mettenheim and Butzbach (2012) defined them as banks that have long-term profit sustainability orientations, social or public mandates and stakeholder governance models. In addition, the authors claim that alternative banks do not seek to maximise profits but rather generate profits to sustain its banking operations. Some advantages offered by alternative banks or banking include less risk, cost efficiency, and relationship specialisation according to the study by Mettenheim and Butzbach (2012).



Thus, in an IT-induced change context of today, there were three transformational levels identified namely, internal organizational, network organization and external organization. These were derived by Alt et al., (2018) from the five degrees of IT-enabled business transformation that are business process design, business scope re-definition, localized exploitation, business network redesign, and internal integration. The degrees were defined by Venkatraman (1994) in the early years saying the first two transformational levels mentioned above were grouped into two evolutionary levels while the next three transformational levels were grouped into three revolutionary levels.

Technology, specifically transformational technology (such as FinTech) and regulation pressures, combined with the changes in consumer behaviour are driving the banking sector transformation, leading the sector to adopt new business models (Llewellyn, 2018). So, the transformation seems to be occurring at these three levels (technological, regulation and consumer expectations). Some of the transformation include better competition in the retail finance, new business models, the deconstruction of the value chain, access to alternative products and services, change of interface between

customers and financial services, payments systems and greater use of artificial intelligence (Llewellyn, 2018).

Matt, Hess and Benlian (2015) derived from the literature, interviews and case studies, a digital transformation framework. The authors identified four digital transformation strategic dimensions comprising of the use (and exploitation) of technologies, structural changes (incorporation of new operations to existing structures), changes in value creation (firm's value chain), and financial aspects (financing the change endeavour). The framework is illustrated as follows and will be applied to the study.

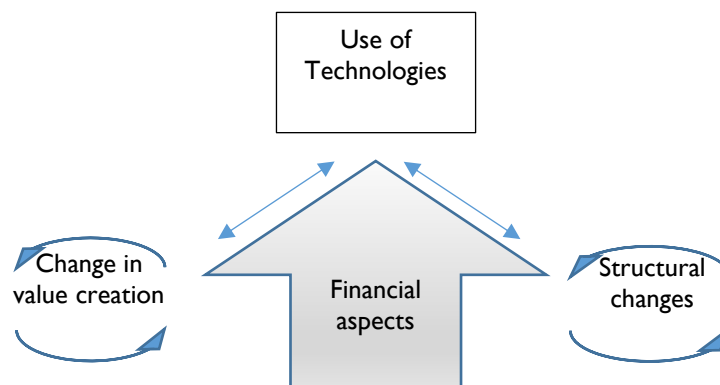


Figure 1: Framework of Digital transformation: Balancing four transformational dimensions.

The framework dimensions are explained in brief. That is, Matt et al. (2015) explained a company's use of new technologies as having addressed its attitude towards the technologies as well as the ability to exploit these technologies further. Furthermore, the authors explain that



it is a company's prerogative to ascertain whether it should be a market leader with regards its use of technology to set its own standards, or if it prefers to abide by established standards, thus it will regard technology as a means towards fulfilling its business operations. The second dimension known as changes in value creation are concerned with digital transformation strategy impact on a business's value chain(s), i.e., how far the analog - core business is different from the digital activities. For example, where digitization of services or products are required, it requires different monetization forms or business scope adjustments to address new market segments (Matt et al., 2015).

To buttress digital transformation within the financial sector which includes mostly banks, and alternative banking, a pilot study was conducted to ascertain bank transformation where some bank managers were interviewed. Bank transformation according to one bank manager indicated that it is visible and viable. The bank manager said:

"Yeah, definitely, I mean obviously we've seen it right through, we've seen the change in terms of branch usage versus cellphone/ internet usage." (Bank manager 1)



Another bank manager gave an example of digital bank transformation saying:

“Previously customers came into the bank to ask what their balance is, to check if a payment went into their account and to give notice on funds that they want to withdraw, to make arrangements with the bank. Now that is no longer needed because once the customer has been successfully identified on their device through cellphone banking or through the app, then they can do all of those functionalities themselves, so it saves them a lot of money and convenience at the end of the day.”

(Bank manager 2)

More evidence of bank transformation is contained in these excerpts from two other bank managers who attested that:

“.....in terms of digital migration, and now we're not only talking accessing your banking via digital applications, be it apps, be it online banking, there's so much more to it in terms of the branch networks where we are migrating



clients out of the bank to do more transactions at the ATMs.” (Bank manager 3)

“.....I know all the banks have moved to the digital platform, so also that they brought, you know banking home, right into the homes of clients. So, it's no longer like, you have to go into the bank to do transactions or to acquire or to do any of these things, because it's almost like there's a third person, or it makes life a little bit, you know, simpler.” (Bank manager 4)

Continuing with the dimensions, with different technology forms and use of value creation, structural changes according to Matt et al. (2015), are business organizational set-up variations that are concerned with the new digital activities' placement within the structures of the corporation. Structural changes as Tokosi (2016) put it does not necessarily mean changes in the physical building but rather a change in a business's procedure and processes when technology is introduced. The business's procedure and processes when technology is introduced is where transformation really takes place. For example, bank manager 3 put it:



“So, there are yes. Look the processes of the transactions that we do in the branch will remain the same, but there are very many transactions that we have migrated our clients to online platforms. So along with that comes the education of the client.”

Additional comments on the impact of technology on the banking transformation were made by bank manager 4 saying:

“The processes is a bit more simpler, has become more, should I say, almost more prepolus, the processes changed a little bit faster like you don't need to carry your whole documentation with. Yeah, the processes have changed, I mean, how to identify clients, that has changed and that for me has changed much more than the other stuff.”

A further review of the literature elucidates the various banking transformation globally. For example, Diener and Špacek (2021) focussed on the managerial perspective of the barriers to digital bank transformation in the German banking sector. The findings revealed that



barriers to digital transformation include the elements of technology and regulation, employees, strategy and management, and customers.

In the pilot study conducted in South Africa, some barriers according to a bank manager of a financial institution that was interviewed listed cost and IT resource as major constraints. For example, he said:

".....as a smaller financial services institution, when we're playing against the banks, we do have to choose the technologies that are going to be fit for purpose for us, knowing that we are a smaller player in this big market."

(Bank manager 1)

Regarding IT resource, he said:

"Another constraint is IT resource, that's a huge constraint. We've got this short supply of IT resource in South Africa and actually, because it's in such short supply, uhm they get snapped up left-right-and-center by the banks and others and you know, so, if you make an offer one day to a prospective, you know, IT person and the very next day they've received an offer worth



20% more pay at a big bank, now how do you compete with that when you know you're going to get outgunned....."

Other than cost and IT resource, covid19 did impact the transformation process. As bank manager 4 put it:

"I think now with this Covid thing and our foreign nationals that struggled with their stuff, I think that was the only thing that was kind of like a bit awkward for me, for our clients that needed to get their stuff updated and stuff like that, and because of the delays and things that was now not, you know, really functioning, and stuff like that, so I think that was the only thing that really was a kind of, you know a type of a block or barrier....."

Meanwhile, for technology and regulation in South Africa, there seems to be an impact of the regulation on driving bank transformation. This is according to bank manager 1 who said:

".....I think the fact that our regulations are very prescriptive on what you can and can't do and all those



good things means that you need to digitally transform so that you can process that data in the manner that the regulations require you to process it. If you had purely manual processes, I think it would be difficult to get a pass mark on your regulatory compliance just because of the number of steps you have to go through."

Bank manager 2 concurs with the impact of regulations on technology saying:

"I think regulations change as technology changes as well, for instance the security. If you think of security, how will a customer be identified if you don't have a customer face to face with you. So, if a customer is not in front of you when you ask for his ID book, then the bank at that stage when they initiate the transaction, they'll make sure that there are sufficient security measures put in place, so when a customer wants to transact on a different platform then all the security measures were put in place already."



Furthermore, bank manager 3 is also in agreement that regulation impacts technology alternatively, bank manager 4 does not see any impact.

“So, that is prevailing, but that also creates opportunities for the policy writers, because look, your regulations and your compliance are always going to be there, especially with digital platforms and security and that sort of thing, so that one thing spills right through to everything at the end of the day, including your customer behaviour.” (Bank manager 3)

“Not at all, I think they strictly adhere to it. I think also now is that you have, obviously with the new act which is the POPI act. So it hasn't slightly changed, it hasn't it's just that you need to ask for that permission.” (Bank manager 4)

In addition, regulation supports and drives transformation especially when operating in this 4IR era. This is evident in the claims made by bank manager 1 that:



“.....you'll be a lot more error prone if you didn't have digital transformation alongside the regulatory requirements.”

Regarding employees, Diener and Špacek (2021) study found that there were insufficient qualifications available of relevant employees' qualifications, and it turned out to be a disadvantage for the general digital change in banks and implementation of complex digital topics. In addition, there were insufficient people in the workplace market to occupy available IT vacancies and, ultimately, to enable digital transformation and work on digital issues.

Compared to Diener and Špacek (2021) study, the pilot study preliminary analysis indicated that there are also insufficient but well-trained skillset especially in IT for the banking sector transformation process in South Africa. According to bank manager 1:

“.....I think they are well skilled, that's why they're sought after throughout the world, that's why they can find jobs elsewhere in the world, maybe skill them up less.....”



In South Africa, Thwaites (2017) looked at the enablers and barriers to effective collaboration between FinTechs and banks. In an exploratory study, the analysis of the data showed that banks barriers factors to be considered in collaborative innovation, which can also be interpreted as barrier to transformation, include perverse incentives, innovators dilemma, bureaucracy and politics, sunk cost effect, replacement effect, efficiency effect, fear culture or risk averse, productivity effect. Additionally, emotional maturity, customer service and technical skills were also identified in the pilot study conducted and listed by bank manager 2.

“So emotional maturity is, I think that is very, very, important, and that is not always something that a graduate has, because their exposure to life might have been very secluded.....customer service is very important. If that can be built into the curriculum as well, I would say of any institution, that would work in the benefit of anybody because we are all in line to serve somebody else..... then I would also say that it is important that they understand technology, in terms of the security measures that is in place, the basic IT security that should be in place.”



Sia, Weill and Zhang (2021) on the other hand argued for a future-ready organisation, that is; a digitally transformed organisation that responds to unforeseeable phenomenon and pervasive digitalization. Continuing, the authors say that an organisation must incorporate the duality of exploration and exploitation as well as the merger between technology and business into its organizational design. The authors findings revealed that, organizations are better effective when their design characteristics match their environments' demands. Amid a futuristic unforeseeable phenomenon and pervasive digitalization, an organization with the explore-exploit balance and seamless business-IT fusion is better positioned to handle these challenges (Sia et al., 2021).

In understanding business transformation and how well they have fared going forward into the future, it is noteworthy to highlight the barriers banks face in achieving its digital transformation agenda.

SKILLS DEVELOPMENT

With the introduction of the National Skills Development Strategy (NSDS) in South Africa aimed to replace an existed apartheid skills system, Sectoral Education and Training Authorities (SETAs) were established to replace the old Industry Training Boards (ITB) (Allais, 2012, Lolwana,



Ngcwangu, Jacinto, Millenaar and Martin, 2015). Continuing, 80% of employers' 1% levy-grant from their payroll costs are paid to SETAs while the remaining 20% go to the National Skills Fund (NSF). Allais (2012) concluded that the SETAs then use their contribution by paying back some of the money to employers after receiving training plans and reports while the rest money is for discretionary projects within their respective sectors. On the other hand, the NSF uses its contribution to fund unemployed and disadvantaged group training.

Skills development typically is designed to advance and/or improve existing know-how (knowledge, skills, competence) that a person already has. By its nature, skills are acquired through learning to perform various tasks with different degrees of proficiency. Thus, within the banking sector, certain skills (mentioned above) are required for employment and transformation. Bank manager 2 clearly added additional skillset saying.

So, selling skills as well, cross selling skills and servicing customers, understanding what the challenge is, that's important.....



Since employability is an important and severe issue for both the higher education institutions (HEIs) and graduates (Peasland, Henri, Morrell, and Scott, 2019) especially in post-covid, these skills are categorised into cognitive, non-cognitive and technical skills as espoused by Adams, Johansson de Silva and Razmara (2013) and Chu, Reynolds, Tavares, Notari and Lee (2021).

BENEFITS OF SKILLS DEVELOPMENT

While skills development may be considered a long-term solution for further employability for existing employees, fresh graduates with no work experience may have to consider alternatives to get their foot into the workplace environment. In the fields of biosciences, earth and geographical sciences or environmental sciences for example, fieldwork has been viewed as an employability-enhancing skill opportunity according to Peasland et al. (2019).

In the discipline of teaching, skills development can be attained through experiential learning especially for South African in-service and pre-service teachers as studied by Thuketana, (2020). The results revealed that community projects as highlighted in this study are necessary in



spreading theoretical knowledge to in-service teachers by using experiential learning as a skills-transfer strategy in schools.

BARRIERS TO SKILLS DEVELOPMENT CONTRIBUTION TO TRANSFORMATION

With regards to the barriers to skills development, Asonitou (2015) conducted a Greek higher education study on insights from accounting teachers and the barriers to the teaching of skills. The study findings revealed that barriers to skills development include but not limited to barriers from the system (communication problems, lack of clear policy, lack of planning, lack of motivation, lack of space and equipment etc), barriers from teachers (teacher's own professional skills, teacher training, teaching methods etc) and finally barriers from students (student's lack of readiness, student's political organisation, rate of absenteeism etc) (Asonitou, 2015). These barriers can be translated to impact the quality of graduates produced by higher institutions, thus affecting organisational transformation.

Continuing, there seems to be a perception that there remains a mismatch between a fresh graduate's skills and what banks expects of them. For example:



“.....I do agree with you that the graduate that comes in still needs to be taught, you know, which I feel that there’s a gap in general, a huge gap and I don’t know how, but don’t ask me how, but I do think yeah....” (Bank manager 4)

However, Lolwana et al. (2015) conducted a study in understanding the barriers to skills development and accessing employment for youths in South Africa and Argentina within the wine and construction industries. The study regarding skills development strategies indicated that the wine industry for example still grapples with transformational issues such as land ownership and had not engaged with skills development issues: meaning skills development and industry transformation were disconnected. Similarly, Lolwana et al (2015) claim there is a skills development push by both the private and public institutions within the construction industry. Thus, the construction SETA that manages the construction sector skills development programme is assumed to be weak in transiting student from classroom to the work environment.

In the social sciences for example, work experiences are lacking for fresh graduates. But banks do have graduate programmes to skill these graduates, though they end up losing them after skilling them. This can



be construed to be a barrier to skills development where banks become hesitant to skill graduates. As bank manager 1 put it:

“Yeah 2018, uhm pure IT grads, and we took them through all of our trainings. You know, there were some that we weren't happy with after a year, maybe a couple that we wouldn't have kept on, but of all the rest we were happy with them, I think that almost all of them now left. So, the problem is we've now skilled them up through our grad program and then they all disappear because the banks then will offer them a better amount or whatever the case may be.”

In analysing the comments by the bank manager above, the study in South Africa by Davids-Latief (2016) evidenced that there was a demand and supply mismatch of e-competences whether in knowledge, skills as well as in attitudes. The author noted that the latter were the most important e-competence requirement than knowledge and skills. In the same vein, a study conducted by Thwaites (2017) on the enablers and barriers to effective collaboration between FinTechs and banks in South Africa, FinTechs executives interviewed pointed out the “lack of tertiary education”, “the universities not providing the capability



of the sort of skills needed in the digital area”, “poor access to technology skills”, existing technology skills lacking depth, and the fact that there is “brain-drain in the area of success” where local FinTechs compete fiercely with Google and Amazon. But it was also noted that banks are internally building their skills in the digital space (Thwaites, 2017).

Bank manager 2 agreed with Thwaites' (2017) study that indeed banks internally build their skills, although the graduates must still meet its set minimum requirements. The manager said:

“.....the bank will look for that skillset within their CV and then they will train them up further, but they need to have an IT background in order to do that work.”

In 2016, Çiçekli's (2016) study explored the banking sector graduate skills requirements in Turkey. Results revealed 40% of managers believed universities had not provided graduates with the necessary skills to be prosperous in their jobs. Other skill such as soft skills (i.e., interpersonal relationship, communication, and teamwork skills) were required, and managers would also want more graduate training in analytical thinking skills. Although bank manager 1 concurred with lack of graduate skill



requirement for the industry, complaints about adequate return on investment was highlighted:

“So that’s the problem with that skillset is that it’s hard to invest, I think, in young IT grads when you know that they are so marketable that if you do invest in them, there’s a high likelihood that they’re not going to on your books, so to speak for a long time.”

But bank manager 2 believed that universities had provided graduates with the necessary skill to undertake work. The manager said:

“.....I would say yes, because I can see that the people that are employed, that is doing that work, there’s no complaints from them as well. I’m not sure if that is because of how they entered the work environment, or how they were upskilled. Obviously, they had the background when they were employed, but they also went through specific training courses.”

Bank manager 4 is of the opinion that there needs to be a balance between bank expectation and what a graduate brings forth as some



discipline may have adequately equipped a graduate for the world of work while others may not have. She said:

“I’ve seen a lot of graduates, then they don’t have a cooking clue, you know what I’m saying, they don’t have the cooking clue. So, I think, I don’t know, I think the expectation is high from the corporate side…….”

“You get somebody that has studied auditing, or whatever they’ve done, got the degree of financials, still has to start at the bottom, for me it doesn’t make sense. Or does it make sense? But for me it doesn’t make sense, that’s my personal view.”

More research in this domain of graduate skill requirement were recommended and quantitative study adapted in the subject in different countries. Also, bank executives were advised to collaborate and communicate with educators to highlight these banking needs (Çiçekli, 2016).

Similarly, Abbasi, Ali and Bibi (2018) in their Pakistani study sort to identify the gap between skills possessed by business graduates and skills



expected by managers employed in the banking industry. Findings indicated that overall graduate employability skills were lesser than expected by the managers. Continuing, significant skill gaps were found for communication, critical thinking, listening, leadership, problem solving, numeracy, interpersonal, analytical, and self-management. Concluding, Abbasi et al's. (2018) study revealed that female graduates problem-solving skills were inferior to males.

In the South African banking sector, IT skills are scarce and because of this scarcity, banks are forced to employ graduates even where their employability skill were lesser than managers expectations. Bank manager 1 said:

“Because it's such a scarce skill, it's quite difficult to focus on transformation, because you're actually just willing to take whatever skill you can get as long as it's the right skill.”

But in terms of general banking skills required by managers, there is a concern of a skills gap by business graduates and skills expected by managers especially in IT. Bank manager 3's concern is:



“.....there is a gap, from an Information Technology point of view, a huge gap, because we don't have just one system that we work on.”

A note of hope is the increasing involvement of many universities of South Africa and globally in the fourth industrial revolution (4IR) research such as intelligent systems institute, the computational intelligence research group, the robotics and agent's lab, the centre for artificial intelligence research (Xing, Marwala and Marwala, 2018). The importance and application of these and other skills are being investigated in the financial and/or banking sector. For example, in South Africa, the study by Ditse (2020) identified machine learning, coding, programming, quantitative and analytical skills, robotics, problem-solving, communication, agility, collaboration and social intelligence as critical soft and hard skills of the future. Mamela, Sukdeo and Mukwakungu (2020) concurs stating that the relevant competencies and skills that will be on-demand by the future banking workforces in South Africa to enable them to successfully adapt to the 4IR aspects of technological innovations that are inclusive^[1] of the artificial intelligence (AI) tool-set such as blockchain, machine learning, robotics, cloud computing, Internet of Things, nanotechnology and



more, which may ultimately impact the workforce's productivity and performance in the banking institutions.

The investigation by Folcut and Folea (2019) on the perspective of Romanian graduate students on skills for the banking sector analysed the perception of students and graduates of the way in which university programmes help them become well-trained professionals that match job requirements in the field of economics and finance. Folcut and Folea (2019) recommended an increased collaboration between universities and employers by involving students and graduates in collaborative projects between universities and employers and the direct participation of employers in delivering courses and seminars as some examples of implementing these ideas.

The recommendation by Folcut and Folea (2019) was previously highlighted by Tessema and Abejehu (2017) in their Ethiopian study where they examined the role of industry-university collaboration in producing finance and banking graduates with employability skills from industries and instructor's viewpoint. Concluding, instructors and industry workers agreed that finance and banking graduates acquired demonstrable practical and theoretical knowledge, skills, and professional ethics. In addition, the researchers commented on the



need to develop competency models for each job occupation to define graduates' successful performance in a particular work setting via their demonstrable competencies (Tessema and Abejehu, 2017).

Ryklief (2018) and Hove (2019) looked at the current National Certificate Vocational Information Technology (NCVIT) strategy efficacy and Computer Science offered at TVET colleges in South Africa. Both authors found that there is a fit gap between the supply of appropriately skilled ICT graduates by educational institutions, ICT professionals' current skills, the industry demands for appropriately skilled ICT workforce and the current National Certificate Vocational Information Technology and Computer Science (NCVIT) curriculum. Ryklief (2018) for example found there were significant gaps between the current reality (Design-Reality Gap model) and the programme's intended design. Furthermore, the NCVIT programme was considered as a post-apartheid dumping ground for academically under-performing individuals and financially disadvantaged hoping to achieve self-sufficiency rather than an enabler for South Africa's ICT skills development. Hove's (2019) study determined the relevance of the current national NCVIT curriculum to the knowledge and skills needs of the South African ICT industry. The authors findings revealed a fit gap between South African ICT industry's



skills and knowledge needs of entry level IT employees and the current national NCVIT curriculum (Hove, 2019).

Ditse (2020) highlighted a need for learning through simulations or experiential learning as some of the teaching methods could equip and enhance graduates with relevant skill sets and practical experience in South Africa. The author in agreement with Pouratashi and Zamani (2019) recommended that institutions of higher learning and industry work together to bridge the skills gap including the collaboration between both parties to ensure alignment in academic curriculum with industry needs, having industry experts in academia, as well as employee internal and vocational training provided to up-skill or re-skill their current workforce (Pouratashi and Zamani, 2019; Ditse, 2020). Something to take note of here are the requisite skill competences of academic teachers for them to adequately equip graduates.

Still on South Africa, Harmse and Wadee (2019) used the Skills Framework for the Information Age (SFIA) to explore the technical skills required by the ICT industry and developed a framework for decolonizing the ICT curricula in the higher education institutions. The proposed framework consolidated the relationships amongst additional skills (such as negotiation, analytical, social skills, critical thinking etc) and technical



skills, that could act as a point of departure to further decolonize ICT educational materials. The South African HEI ICT framework forms the basis of understanding the current skills-set requirements of South African ICT practitioners. Harmse and Wadee (2019) concluded that such skills should be taught to act as a foundation of future skills, which could result in producing an effective ICT practitioner that would interact with the latest developments and trends.

We know that IT professionals in a South African study face issues of reliable and efficient IT infrastructure which is perceived as the most highly ranked organizational issue while networking and telecommunications as the most important technology issue (Njenga, Scholtz, van Belle and Serenko, 2020). Though these issues may persist, employee work satisfaction are important in helping to resolve these issues adequately. The need for improved remuneration, re-organization, work safety, promotion and work environment relationships were identified as principal factors for general employee work satisfaction according to a study by Bhardwaj, Misha, and Jain (2021). IT professionals form part of a bank's workforce thus, by analysing job satisfaction of employees in the Indian banking industry, the authors found a positive connection and correlation between remuneration and job satisfaction, promotion opportunities, job security and good



relations with employees (Bhardwaj et al's., 2021). Concluding, the survey showed that many bank employees were satisfied with their bank work culture though salaries and timings remained a concern.

In Portugal, Abelha, Fernandes, Mesquita, Seabra, and Ferreira-Oliveira (2020) undertook a systematic review of competence development and graduate employability in higher education using the preferred reporting items for systematic reviews (PRISMA) statement from research studies over a ten-year period from 2009 to 2019. The systematic review found that a mismatch between the university's graduate competences and employers' needs is a barrier to competence development and graduate employability. The authors then suggested that higher education develop a sense of innovation and implement collaboration practices. Supportively, Pouratashi and Zamani (2019) in their Iranian study recommended curriculum accreditation and university employers' participation in work-based learning and curriculum development as mechanisms for useful solutions in ensuring a match between the demand and supply of skills.



SUMMARY

The banking sector globally has undergone major transformation over the decades and has been consistent in moving with the changing times. With the introduction of advanced intelligent systems such as blockchain, Internet of Things, robotics, biometrics and so on, banks are better prepared to cope with client increase and expectations as well as security. For this reason, there was a need to review the literature on banking and alternative banking skills development and its subsequent barriers.

Due to the nature of banking operations, it is noteworthy that adequate skills and skills development of existing bank staffs is necessary to keep banks at pace with the 4IR impact. Both existing banking staffs and potential future staffs are expected to be equipped with unique skills required for the future. Such skills identified in the literature include but not limited to machine learning, coding, programming, quantitative and analytical skills, robotics, communication, problem-solving, agility, social intelligence, and collaboration skills.

The pilot study gives a snapshot of the perceptions, feelings, and concern of some managers in some South African banks. Four (4)



managers were interviewed under the pilot project. A pilot study is primarily to test the research instrument for this study. For this reason, no set number of interviewees are required, nor are the duration of each interview. A pilot assesses the understanding or lack thereof of the interview questions, length and ambiguity of the questions or lack thereof.

BANKSETA works with banks who are levy-paying members and is tasked with addressing the financial and banking concerns as well as respond to their challenges. Responses from the managers in this pilot study is largely about training and development. There is still a need for BANKSETA to do more in training and equipping graduates with relevant skillset to prepare them for the world of work within the banking and financial sectors. Managers responses were:

“So, I guess that’s kind of the area where Bank SETA maybe could start playing a role as almost trying to find an avenue to get, so as an example we are potentially looking at salesforce as a platform. Now if you had, and salesforce is getting bigger and bigger, if you put some grads through a salesforce three-month program or whatever the case may be, it would be hugely



marketable after that three-month training because we are looking for salesforce developers and they can't be found." (Bank manager 1)

"Maybe if you were to focus more on learnerships focused around IT and those critical skills, and some of the cloud-based technology that Matt has spoken about, like your salesforce, AWS, Microsoft, all of those different platforms. Especially for your unemployed grads, or unemployed people, I think that would be hugely beneficial to have those people go on those learnerships and for them to be real world ready, so you have a huge pull of people with skills that we need, because there's a lot of critical skills and we do have the population to supplement it, it's just about getting that skillset right, so I think that's something that Bank SETA should focus on, those critical skills learnerships specifically." (Bank manager 1)

".....they need to know about customer service, they need to know about emotional maturity, they need to know about conflict handling, they need to know about technology, they need to know about the security



involved with technology as well. I think if that basics are in place, and you know if we can put in some credit training there as well, credit training because at the end of the day we work with cash and if they don't have that credit knowledge, then that's going to be a problem as well. They at least need to know about the courses that is addressing credit." (Bank manager 2)

"Well, I don't know what the Bank SETA is already doing in terms of that, but that would basically be collaborative efforts between Bank SETA and the different banks, forming relationships at a higher level, even if it gets done through the regional executives, because the regional executives then take that information up to the top again." (Bank manager 3)



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ADDENDUM 3: Interview guide for Topic 2

- 1) How would you describe the changes in the SA banking sector in this era of information technology?
- 2) Is there any significant transformation in the SA banking sector at all?
- 3) What are the levels of transformation in the banking sector, If any?
- 4) Businesses in general are experiencing different degree of transformation which include business process design, business scope redefinition, localized exploitation, business network redesign, and internal integration.
- 5) If you were to rank these levels of transformation, which one would you say is the most prevalent in the banking sector in SA?
- 6) To what extent are other levels in your institution being transformed?
- 7) What are the factors driving transformation in the banking sector in SA? (technology, regulations, consumer behavior)?
- 8) To what extent transformation technology, regulatory requirements and changing customer behaviour are impacting SA banks business models?
- 9) How is the existing regulation affecting the adoption of digital technologies?



- 10) What are the historical and contemporaneous factors preventing the adequate transformation of the banking sector in SA?
- 11) And what would be the best practice that would facilitate the implementation of digital processes in the banking sector?
- 12) What are the factors affecting remote banking services? And what are the factors affecting the use of remote banking services by SA customers?
- 13) What can lead to effective transformation in the banking sector in SA, if not yet?
- 14) It was evidenced that there is a demand and supply mismatch of e-competences in knowledge, skills and attitudes in SA. From your perspective, what are the barriers to suitable skills development for today's banking in SA?
- 15) Or what are the skills development barriers to the transformation in the banking sector in SA?
- 16) How are the skills development barriers affecting banking transformation in SA? Or how does the mismatch in knowledge, skills, and attitudes impact on the transformation of banks?
- 17) How are those skills gap impacting the productivity and performance of banks?



- 18) How to improve different IT programmes in Colleges and Universities to deliver the type of graduates needed in the banking sector in SA?
- 19) Is there any collaborative practices between your banking institution and Universities/colleges?
- 20) From your perspective, how can BankSeta expand access to post schooling education and training?