

Financial Technology Adoption in Public Financial Management of South Africa: a Path Toward Digital Transformation

Prince Chukwuneme Enwereji¹, Regina Stofile²

¹⁻²Walter Sisulu University, Eastern Cape, South Africa

E-mail: penwereji@wsu.ac.za¹, rstofile@wsu.ac.za²

Abstract. This study examines the adoption of Financial Technology in South African public sector financial management. The study adopted a qualitative research approach and depended on literature reviews for data collection. A total of 260 articles were downloaded for this study while only 11 articles were used after rigorous selection criteria. The findings show that mobile payments and digital banking have significantly improved financial inclusion, especially in urban areas, although adoption in rural regions has been slower due to challenges such as poor infrastructure and low digital literacy. More advanced FinTech solutions, like blockchain and Artificial Intelligence, are still in early stages. The adoption of FinTech has led to greater efficiency in government financial processes, automating tasks like payments and tax filings, which has reduced manual workloads and sped up service delivery. Blockchain technology has improved transparency and accountability and has allowed for better tracking of public funds and reducing the risk of fraud. However, the full potential of FinTech has been limited by barriers like outdated infrastructure, regulatory gaps, and resistance to change within the public sector. To unlock the full potential of FinTech, the study recommends among others, improving digital infrastructure, enhancing digital literacy, and strengthening regulatory frameworks.

Keywords: Financial technology, Public financial management, Blockchain technology, Digital transformation, Financial inclusion, Digital financial services

1. Introduction

Financial Technology, or FinTech, has changed how financial services are delivered around the world today [1]. The term 'FinTech' encompasses a broad range of tools, systems, and applications such as mobile banking, blockchain, artificial intelligence (AI), data analytics, and digital payment platforms that make financial transactions faster, more efficient, and more accessible. This approach to service delivery incorporates tools such as digital payments, automated budgeting, online banking systems, and blockchain technologies [2]. These tools help make financial processes faster, cheaper, and more transparent. According to [3], FinTech is no longer just for private companies and banks, Governments and public service institutions are also using it to improve how they manage money and other transactions. In many countries, FinTech has helped reduce corruption, increased efficiency, and improved access to public services. It has also made it easier to track public spending and involve citizens in financial decision-making

[4]. With the speed and flexibility of Fintech, [4] affirms that it has the potential to reshape how public institutions operate. In view of [5], FinTech is becoming essential in ensuring that financial systems are inclusive and accountable. As more governments adopt digital strategies, FinTech is becoming a key driver of innovation in the public sector.

In South Africa, public service institutions play a critical role in delivering services such as housing, healthcare, education, and water. These services depend heavily on proper financial management. Despite the introduction of FinTech in South Africa, the public sector still faces numerous challenges such as poor revenue collection, weak accountability, and delays in service delivery [6, 7]. Local and provincial institutions often work with outdated systems while many struggle to adapt to modern technology. While FinTech tools exist, there is little research showing how much they are used in the public sector in South Africa. Most available studies focus on private banks or businesses. This leaves a gap in understanding how FinTech can support financial management in public services. The motivation for this study comes from the need to explore how FinTech can support better public finance systems. There is a growing need to make public financial systems more efficient, especially in a country with high service demands and limited resources.

This study aims to assess the extent to which FinTech has been adopted in public sector financial management in South Africa. It will also evaluate the impact of FinTech adoption on the efficiency and accountability of public financial management processes. The outcome of this study is expected to highlight the best practices and the importance of adopting FinTech in public sector financial management. This research is deemed relevant to policymakers, public finance managers, and technology developers as it offers insights that can help build stronger financial systems in the public sector. The findings will guide decision-makers in planning better services and using public funds more wisely. The study thrives to support a shift toward a public service that is modern, transparent, and more responsive to the needs of citizens.

2. Context of the Study

The adoption of Financial Technology (FinTech) has gained global momentum as governments seek to modernize their financial systems and improve public service delivery [8]. FinTech encompasses digital innovations such as automated payment systems, electronic budgeting tools, online revenue collection platforms, and blockchain-based auditing [9]. These technologies are reshaping how public financial resources are managed, with promises of increased efficiency, better transparency, and greater accountability. In many developed and developing economies, FinTech adoption in the public sector is proving to be a catalyst for reforming outdated financial processes and building public trust.

However, the need for digital transformation in public in South African financial management has become increasingly urgent. Digital transformation is the process of integrating digital technologies into all aspects of an organization's operations, culture, and service delivery to improve efficiency, transparency, and responsiveness. Government institutions at national, provincial, and municipal levels are under pressure to deliver services more efficiently and with greater financial discipline [10]. Yet, many of these institutions continue to rely on traditional systems that are often slow, fragmented, and vulnerable to fraud and mismanagement [11]. Public financial management in the country still grapples with delays in payment processing, limited expenditure tracking, and poor public access to financial information. Public Financial Management (PFM) refers to the set of laws, systems, processes, and institutions that governments use to plan, direct, and control public resources effectively and transparently. These inefficiencies undermine service delivery and weaken public confidence in government institutions.

While FinTech presents a compelling solution, the extent to which it has been adopted across the South African public sector remains unclear [12]. Moreover, little is known about the specific conditions that enable or hinder its implementation in public financial management. Factors such as regulatory readiness, institutional capacity, political will, cybersecurity, and digital literacy can either support or obstruct progress. Understanding these dynamics is critical to guiding future reforms. This study seeks to assess

how widely FinTech is currently used within public financial systems in South Africa. It also aims to explore the impact of its adoption on financial efficiency and accountability in South African public sector. This study intends to offer practical insights that can support the development of digital financial governance strategies tailored to the South African public sector context.

3. Problem Statement

Public financial management in South Africa, across all levels of government, plays a crucial role in ensuring efficient service delivery and the responsible use of public resources. However, persistent challenges such as poor financial oversight, slow processing systems, limited transparency, and inadequate citizen engagement continue to affect the effectiveness of these systems [13]. Traditional financial procedures remain heavily reliant on manual processes, which often lead to inefficiencies, delayed decision-making, and reduced accountability.

While Financial Technology (FinTech) offers new opportunities to transform public financial management by improving efficiency, transparency, and citizen participation, its adoption in the South African public sector remains limited and uneven [11]. There is insufficient evidence of the extent to which FinTech has been implemented, particularly within key areas such as budgeting, revenue collection, and expenditure tracking. Institutional readiness, regulatory compliance, and digital literacy pose further challenges to successful adoption [14].

The lack of a clear understanding of both the enablers and relevance of FinTech integration within the public sector limits informed decision-making by government officials and policymakers. Without detailed insight into the real impact of FinTech tools, public institutions risk missing out on the benefits of digital transformation. This study responds to this gap by examining how FinTech is currently being used in South Africa's public financial management systems and identifying the relevance of its adoption toward building a more modern, transparent, and accountable public finance environment.

4. Literature Review

The literature review of this study focused on the origin of Fintech in South African public financial management, FinTech adoption in South Africa, drivers and barriers to FinTech adoption, and impact of FinTech on public financial management.

4.1. Introduction to FinTech and public financial management

Financial Technology, commonly known as FinTech, has become a major driver of innovation in both the private and public sectors. It involves the use of digital technologies such as blockchain, artificial intelligence, mobile applications, cloud computing, and big data analytics to improve the delivery and management of financial services [15]. Originally, [16] affirms that FinTech was closely linked with startups and the banking industry, where it helped improve customer experience, lower costs, and increase transaction speed. Over time, its benefits attracted attention from governments and public institutions looking to improve their own financial systems. Many of these institutions now rely on digital platforms to manage payments, track revenues, and process transactions more efficiently [17]. In many developing countries, [18] confirms that FinTech is helping close the gap between traditional financial systems and modern digital solutions. It enables real-time reporting, greater transparency, and easier access to services, even in remote or underserved areas. For public entities, FinTech represents more than just a technical upgrade, it serves as a tool that supports institutional reforms and improve service delivery [12]. This shift is especially important in nations like South Africa, where both economic pressures and public expectations are growing.

Public Financial Management (PFM) plays a central role in how governments manage and allocate public funds. It covers a wide range of financial activities, including planning national and provincial budgets, collecting revenues, making payments, managing procurement, reporting expenditures, and ensuring that spending aligns with policy goals [19]. In South Africa, institutions such as the National Treasury, the Auditor-General, and various provincial and municipal departments are tasked with

maintaining sound PFM systems. These systems are essential to ensuring that public money is used responsibly and that government programmers deliver results [7]. When PFM processes are weak, the consequences include delayed service delivery, resource misallocation, growing public distrust, and even corruption. Strong PFM systems help build a foundation for fiscal discipline, operational efficiency, and good governance [20]. However, many departments continue to face difficulties related to outdated systems, a lack of skilled personnel, and weak oversight mechanisms. As government responsibilities increase, so does the need for smarter financial systems that can handle complexity, offer real-time insights, and promote transparency across all levels of the public sector [21].

Integrating FinTech into the public financial management systems of South Africa presents a real opportunity to tackle some of these long-standing challenges [14]. FinTech tools can help government departments automate repetitive processes, track budgets more accurately, and produce timely reports that reflect actual performance. Mobile payment platforms, cloud-based accounting software, and real-time dashboards offer ways to make transactions faster and more secure [22]. These tools can also support efforts to reduce corruption, as they leave digital footprints that are harder to manipulate or hide. For South Africa, a country that continues to grapple with issues of accountability and public resource management, FinTech provides a path toward greater transparency and trust [23]. [24] further state that it gives public officials the tools they need to make more informed decisions and manage scarce resources more efficiently. Adopting these technologies aligns with the broader digital transformation agenda of the government, which seeks to modernise public services and increase responsiveness to citizen needs [25]. As public demand for better governance and service delivery grows, embracing FinTech is not just an option, it is a necessity for building a resilient and future-ready public sector.

4.2. FinTech adoption in South Africa

South Africa has made steady progress in adopting Financial Technology (FinTech) within its public sector. Several government departments and institutions have started using digital platforms to improve financial service delivery and operations [21]. One notable example, according to [26] is the South African Revenue Service (SARS), which has rolled out services like eFiling and the SARS MobiApp. These platforms allow individuals and businesses to submit tax returns, make payments, and access services online while reducing long queues, paperwork, and delays [27]. Across different levels of government, including provincial offices, similar tools are slowly taking root. Local governments have introduced digital systems for budgeting, procurement, and financial reporting, aiming to improve accountability and streamline workflows. Despite this progress, the uptake remains uneven as some departments lack the infrastructure or skills to implement FinTech solutions effectively [22]. Challenges such as inconsistent internet access, outdated legacy systems, and limited digital literacy among staff continue to slow down full adoption [28]. Nevertheless, there is growing recognition among public institutions of the potential of technology to enhance efficiency and improve service delivery.

The South African government has introduced several policies and strategic initiatives to support digital transformation, especially within financial management. The Department of Communications and Digital Technologies (DCDT) launched the Digital Economy Master Plan, which outlines clear steps for improving digital infrastructure, developing digital skills, and expanding e-government services [29]. National plans now encourage departments to shift from manual to digital systems and promote coordination between institutions. To make room for innovation, [30] affirms that regulatory sandboxes have been set up, allowing FinTech startups to test new solutions in a safe and supervised environment [31]. These controlled spaces make it easier to explore new ideas without compromising consumer protection or violating financial regulations. Alongside national policies, interdepartmental collaborations are also helping drive change [32]. Digital public infrastructure projects, such as the development of digital ID systems and integrated payment platforms, show a firm government commitment to improving transparency and access to services [29]. These efforts reflect a growing awareness that digital transformation is not just a trend [27], it is

necessary for building a responsive and inclusive public sector that can meet the needs of citizens in the 21st century.

Key institutions such as the National Treasury, SARS, and public organizations are central to driving FinTech adoption across the country. The National Treasury plays a leading role in shaping public finance policy and setting standards for financial management at all levels of government [33]. Its support for transparency, innovation, and efficiency sets the tone for FinTech integration across departments. SARS continues to lead with its digital tools and offers a model for how technology can improve revenue collection, taxpayer engagement, and regulatory compliance [27]. At the local level, public sectors are starting to follow suit, especially in response to pressure for better service delivery and tighter financial controls [33]. Many public organizations are working under the guidance of the Public Finance Management Act (PFMA), which encourages good governance and financial accountability [34]. Training programs are helping to build the skills needed to operate new digital tools, while partnerships with tech providers are opening access to affordable FinTech solutions [35]. [35] further states that these institutions form the backbone of South Africa's efforts to modernize its public financial systems. Their collective actions are helping to create a more transparent, efficient, and trustworthy public finance landscape that is better equipped to support development and citizen wellbeing.

4.3. Drivers and barriers to FinTech adoption

Several important drivers have encouraged the adoption of FinTech in South African public sector financial management. According to [11], political will remains one of the strongest enablers. When government leaders actively support digital transformation, departments are more likely to invest in new systems and rethink traditional ways of managing public funds [36]. [11] pinpoint that key policy documents and speeches have reflected growing recognition of the role of technology in improving governance and accountability in recent years. Infrastructure development is another crucial factor. Investments in broadband connectivity, cloud computing, and mobile platforms have laid the foundation for integrating FinTech solutions [37]. Digital literacy plays a major role, as increasing familiarity with technology among civil servants enhances their willingness to adopt digital tools in daily operations. Furthermore, [38] highlight that partnerships with the private sector, academic institutions, and international donors have accelerated innovation. These collaborations provide technical solutions, training, funding, and shared expertise and have created an environment where public institutions feel more confident in exploring and implementing FinTech in their operations.

Despite the momentum, several barriers continue to hinder the widespread adoption of FinTech in public financial management [39]. One of the most pressing challenges is regulatory uncertainty. While the country has made efforts to modernize its legal frameworks, many public departments still operate under outdated rules that do not fully support digital processes [40]. This causes confusion and slows down adoption. Cybersecurity is another major concern. Public institutions hold sensitive data, and the fear of cyberattacks often discourages departments from experimenting with digital tools [41]. In addition, resistance to change is a real issue, especially among staff who are more comfortable with traditional systems [41]. The change management processes are often weak or overlooked, making it harder to gain buy-in from those expected to use the new tools. Funding constraints also limit progress as some institutions lack the budget to invest in modern software, devices, or staff training [42]. Without sustained financial support, even the best FinTech strategies risk stalling. These challenges show that digital transformation is not just about having the right technology, it also requires thoughtful planning, leadership, and long-term investment.

The gap between potential and practice highlights the need for a balanced approach. On one hand, the enthusiasm for digital transformation shows that South Africa is ready to embrace FinTech in public service [43]. On the other hand, [43] states that overcoming the real and practical barriers will require more than just good intentions. Institutions need clear guidelines, strong internal champions, and supportive ecosystems to drive lasting change. Building trust in digital systems is also important. In this regard, [44] affirm that citizens and public officials alike need to believe that these tools are secure, effective, and built

to serve the public good. That trust grows when systems are well-managed, data is protected, and services improve. As more departments share success stories, confidence will grow across the public sector. A gradual, inclusive approach such as one that brings everyone on board, from policymakers to frontline staff can help ensure that the promise of FinTech becomes a reality for public financial management in South Africa [44].

4.4. Impact of FinTech on public financial management

The introduction of Financial Technology into the public financial management of South Africa has brought noticeable improvements in operational efficiency [45]. Government departments that once relied heavily on manual processes are now turning to automation to speed up service delivery [44]. SARS, for example, has become a leader in this space with its eFiling platform and MobiApp. These tools allow taxpayers to complete submissions and receive feedback without visiting an office, saving both time and resources. More so, [43] upholds that automation also reduces the chance of human error in key processes like tax assessments, procurement, and payment scheduling. Many departments now use real-time dashboards to monitor revenue and expenses, which improves responsiveness and enables quicker decision-making [46]. With these tools in place, officials can spot overspending or underspending earlier and adjust accordingly. Digital recordkeeping also means fewer delays when retrieving financial data for internal use or audits [45]. FinTech tools free up staff time and allow employees to focus on higher-level planning and oversight. This shift to digital systems marks a major step forward in how public finance is managed in a country where service delivery and financial accountability are national priorities. Beyond efficiency, FinTech has made government financial operations more transparent and accountable [43]. Digital platforms automatically track each step of a transaction, creating a clear audit trail that is difficult to manipulate. These audit trails are essential for identifying misuse of funds and tracing irregularities, especially in high-risk departments [44]. Electronic payment systems have also helped reduce the risks associated with cash handling and manual transactions [47]. Funds can now be traced from source to destination, improving both financial control and public trust. In some instances, blockchain-based platforms are being tested to enhance data integrity, making it virtually impossible to alter records without detection [48]. This level of transparency strengthens public confidence in financial systems, particularly in a country where corruption and mismanagement have long been major concerns. FinTech also empowers oversight bodies like the Auditor-General and Parliament by giving them easier access to accurate financial data. Even citizens benefit from more open systems, as government spending reports and updates are often made publicly available in digital formats [44]. Together, these improvements make it easier for stakeholders at all levels to hold institutions accountable. Several real-world examples in South Africa show the potential of FinTech to reshape public financial management. In some public organizations, digital platforms are already being used for budgeting, procurement tracking, and revenue collection [45]. These tools have led to better recordkeeping, quicker reconciliations, and stronger financial oversight. The National Treasury has launched initiatives to promote e-procurement systems that reduce paperwork and improve transparency in how government contracts are awarded [49]. According to [50] these systems also make it harder for corruption to thrive, as records are easily accessible and trackable. SARS has partnered with private technology firms to streamline tax collection and expand mobile tax services, especially in rural areas. Furthermore, [48] confirms that collaborative pilot projects have explored new platforms for social grant distribution and municipal billing, with the goal of making public services more accessible and efficient. Consistently, [46] confirm that many of these innovations have received positive feedback from both government officials and the communities they serve. While challenges such as funding, skills shortages, and infrastructure gaps still exist, these pilots show what's possible when digital tools are used intentionally. They highlight the transformative role FinTech can play in making public finance systems smarter, more reliable, and more citizen focused.

4.5. Research gaps and justification for the study

Although FinTech has gained momentum globally, there remains limited empirical evidence on how it is being adopted and applied within the public sector of South Africa [42, 43]. Much of the existing research focuses on private sector innovation or general digital transformation trends, leaving a noticeable gap in understanding how government institutions are using FinTech to improve public financial management [41, 45, 44]. Little is known about the actual effectiveness of these tools in enhancing accountability, increasing transparency, or driving service delivery outcomes in a public context. While some case studies and reports hint at progress, few have provided detailed, data-driven analysis on the measurable impact of FinTech solutions across various levels of government. This lack of evidence makes it difficult for policymakers and public administrators to make informed decisions about investing in or scaling digital financial tools. Moreover, without robust research, it is challenging to identify which strategies are working and how different public organizations are adapting to these changes. There is a pressing need for studies that go beyond policy declarations and explore real-world implementation and results. This study responds to that need, aiming to fill the knowledge gap and offer practical insights that can guide future digital transformation efforts in the public financial systems of South Africa.

5. Methodology

This section presents the research methods used to find answers to the research questions. A non-empirical methodology was adopted in this study. A non-empirical research method refers to a research approach that does not rely on direct observation, experimentation, or data collection from real-world phenomena [51]. Instead, it involves the use of existing literature, theoretical frameworks, or conceptual analysis to explore ideas, theories, or concepts [52]. A systematic literature review was applied, and a qualitative research method was adopted. Data was collected from articles related to the research topic (FinTech and public financial management). The following section describes the procedures followed in the methods.

5.1. Database Selection and Eligibility Criteria

For this study, the primary databases selected were Questia, Scopus, DOAJ, JSTOR, and Web of Science. These databases were chosen for their comprehensive coverage of academic literature and their ability to provide access to peer-reviewed journal articles. The search was specifically focused on articles on FinTech adoption in the public sector and public financial management in South Africa. To maintain the academic rigor of the review, other document types such as conference proceedings, book chapters, unpublished theses, and non-peer-reviewed sources were excluded. Only peer-reviewed, open-access journal articles published between 2019 and 2024 were included to ensure the findings were both relevant and current. Furthermore, the inclusion of only English-language articles was essential to ensure broad accessibility for analysis and to maintain consistency across the dataset.

5.2. Search Strategy and Selection Criteria

The search strategy employed a combination of keywords to retrieve articles from the selected databases. The primary keyword used was 'Financial Technology' OR 'FinTech', paired with additional terms such as 'public organizations', 'public financial management', 'digital payment systems', 'technology adoption', and 'financial inclusion'. These terms ensured the retrieval of articles directly relevant to the adoption of FinTech in the public sector, particularly within the context of South African public organizations' study followed the search strategy and so many articles were downloaded for the study. These sets of articles were refined using the inclusion and exclusion criteria as it focused specifically on studies related to FinTech adoption in South African public sector and public financial management. Other articles that did not follow the outlined selection criteria were excluded as they did not align with the scope of the study. The final dataset consisted of peer-reviewed articles that met these criteria, providing valuable insights into

the extent of FinTech adoption in South African public organizations and the relevance of FinTech adoption. The inclusion and exclusion criteria used in the study are summarized in Table 1.

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Full-text, open-access articles	Articles published outside the timeframe (2019-2024)
Articles published between 2019 and 2024	Non-English language articles
Articles written in English	Articles unrelated to the research focus (private sector, banking, etc.)
Articles focused on FinTech, public financial management	Duplicate articles

5.3. Data Extraction and Synthesis for Systematic Literature Review (SLR)

The systematic review process employed the ATLAS-ti™ 9 software package to facilitate data extraction and thematic synthesis. This software helped categorize and analyze findings based on key themes related to the research objectives, such as the FinTech adoption in South African public organizations and the relevance of FinTech adoption. Thematic analysis was conducted to ensure that data was organized around the primary focus areas of the study and provides a comprehensive understanding of FinTech adoption and its relevance in South African public organizations.

A content analysis was conducted with the help of the ATLAS-ti software which facilitated a clear extraction of data and the identification of significant trends, key insights, and thematic patterns. The researchers reviewed a total of 260 articles from multiple databases; however, only 11 articles met the selection criteria and were deemed relevant for inclusion in this study. The flowchart of the search strategy adopted in this study is presented in Figure 1. ATLAS-ti was instrumental in reviewing these selected articles, particularly in understanding how FinTech is being adopted within South African public organizations. The software also facilitated identifying the relevance of FinTech in the public financial sector. This analytical process provided a structured, rigorous approach to synthesizing the literature, ensuring a thorough and well-supported understanding of the adoption of Fintech and its relevance. The next section presents the findings from the study.

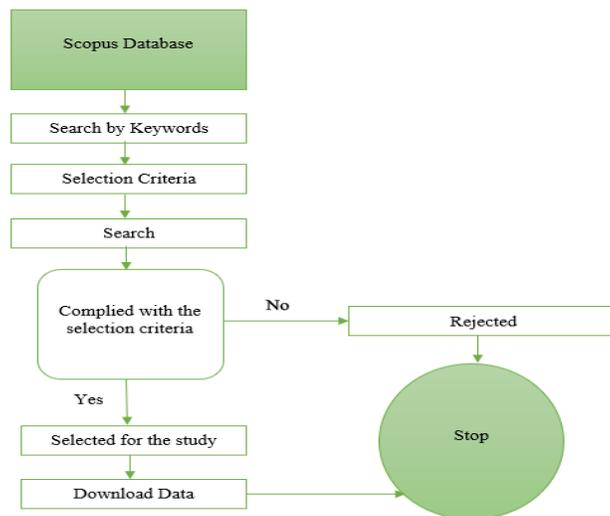


Figure 1. Presents the Flowchart of the Search Strategy Adopted in the Study

6. Results

This section presents the research findings from the analysis of the articles downloaded while following the selection criteria of the study. The results were presented in three (3) tables. Table 2 presents all the articles included in the study. These articles were further analyzed to know the rate of FinTech adoption and its relevance in the South African public sector. Table 3 presents the FinTech adoption in public organizations while Table 4 presents the relevance of FinTech adoption in public financial management in South Africa.

Table 2. Findings from the manuscripts included in the analysis

No	Source	Title	Findings
1	[53]	FinTechs in South Africa: Impact on regulation, incumbents and consumers.	The study found that fintechs in South Africa have brought about increased financial inclusion, enhanced consumer choice, and greater convenience, benefiting consumers by offering more accessible and competitive services. However, they have also created challenges for traditional financial institutions, leading to reduced profits and slower adaptation due to outdated systems, while regulators struggle to address the risks and regulatory gaps posed by fintech innovation.
2	[54]	Predicting FinTech innovation adoption in South Africa	The study found that attitude played a major role in driving the adoption of FinTech innovations like cryptocurrency in South Africa, with a strong positive correlation to adoption intentions. Perceived behavioral control also had a moderate impact, while subjective norms had little influence, indicating that social factors were less important in the adoption of FinTech in this context.

No	Source	Title	Findings
3	[55]	Digital Financial Services: Prospects and Challenges.	The adoption of digital financial services (DFS) in South Africa is improving financial inclusion, but challenges such as low financial literacy and high data costs remain barriers. Financial crimes, including fraud and money laundering, are also concerns due to weak verification methods and insufficient regulatory oversight. The paper suggests strengthening information verification, using biometric systems, and improving the regulatory framework to address these issues and boost DFS adoption.
4	[56]	Transformation of Digital Government Services in the Public Sector in South Africa	The study found that South Africa's public sector faces challenges in digital transformation, including low digital literacy, inadequate infrastructure, and resistance from senior management. Key barriers include power outages and a lack of clear policy frameworks. While some departments, like Home Affairs and SARS, have made progress with digital services, broader adoption is hindered. Recommendations include enhancing digital literacy, improving infrastructure, and involving senior management in driving change. A clear policy framework is also needed to support digital initiatives.
5	[57]	Digitising Financial Services: A Tool for Financial Inclusion in South Africa?"	The study highlights the role of mobile money, which is increasingly popular in South Africa, as a means of increasing access to financial services for low-income individuals. However, challenges such as the need for financial literacy and concerns about exclusion due to lack of access to digital devices are identified. Policy recommendations include stronger public-private collaboration and a national financial inclusion strategy to improve financial literacy and reach. Digitisation of financial services is seen as crucial for economic development.
6	[58]	Investigating the Impact of Digital Transformation in the Public Sector: A Case Study of the State Information Technology	The study identified key obstacles in the effective execution of digital transformation programs, including outdated infrastructure, procurement inefficiencies, and resistance to change. Agile methodologies were found to enhance adaptability, flexibility, and collaboration in digital transformation initiatives. Data governance and

No	Source	Title	Findings
		Agency (SITA) in South Africa	sharing practices were essential for promoting transparency and accountability, but challenges such as data silos and inconsistent quality remained
7	[59]	Factors Driving Artificial Intelligence Adoption in South Africa's Financial Services Sector	The article identifies key drivers of AI adoption in South Africa's financial services sector, including technological advancements, strong leadership support, and a favorable regulatory environment. The study emphasizes that customer demand, competitive pressure, and government support are major factors driving AI implementation. However, barriers such as technological inequality, lack of skilled labor, and regulatory uncertainty still limit the full potential of AI
8	[60]	Enhancing Governance through Blockchain Technology in the South African Public Sector	The study found that blockchain technology could address governance challenges in South Africa's public sector, improving transparency, accountability, and efficiency in financial reporting. However, the adoption of blockchain is hindered by a lack of knowledge and resistance to change within government departments. The study highlighted the importance of upskilling personnel and addressing fears of new technology, particularly from older generations. Furthermore, the research emphasized the need for proper infrastructure and frameworks for technology migration.
9	[61]	An application of the extended Technology Acceptance Model in understanding technology-enabled financial service adoption in South Africa.	The study proposes an extended Technology Acceptance Model (TAM) to explain the adoption of technology-enabled financial services in South Africa. It identifies five key constructs influencing adoption: self-efficacy, task-related variables, trust, hedonistic factors (fun and enjoyment), and social influences. The extended TAM, validated through confirmatory factor analysis, shows that attitude, perceived ease of use (PEOU), and perceived usefulness (PU) are critical factors in the adoption of mobile banking and other technology-based financial services. The research highlights that trust in technology and ease of use are significant predictors of adoption, especially among bottom-of-the-pyramid consumers in South Africa.

No	Source	Title	Findings
10	[62]	Artificial Intelligence and Its Disruptive Role in the South African Fintech Industry	AI is transforming South Africa’s fintech sector by improving operational efficiency, enhancing customer experience, and enabling innovative services such as fraud detection and personalized financial advice. However, significant challenges remain, including concerns over data privacy, algorithmic bias, and the potential displacement of human workers. The study highlights the need for a skilled workforce, robust governance, and clear regulatory frameworks to ensure responsible AI development. Collaboration between public and private sectors, as well as continuous investment in education, is essential to maximize AI’s potential in fintech.
11	[63]	The Role of Financial Technologies in Financial Inclusion in South Africa	The study found that fintechs have significantly enhanced financial inclusion in South Africa by providing financial services to previously excluded individuals and small businesses. Mobile money, digital banks, and peer-to-peer lending have played key roles in overcoming traditional barriers, such as geographic isolation and lack of banking infrastructure. However, challenges remain, such as the need for better financial literacy and accessible technology for underserved communities.

Table 2 confirms that FinTech innovations have significantly increased financial inclusion, providing more accessible services, particularly through mobile money and digital banking. In the public sector, while digital transformation has been slow due to factors like outdated infrastructure, financial illiteracy, limited access to technology and resistance from management, there is growing recognition of the role of FinTech in improving governance, transparency, and efficiency. Blockchain and AI adoption are gaining momentum, offering benefits in areas like fraud detection, customer experience, and governance, but face barriers such as resistance to new technology and a lack of skilled workers. Moreover, the regulatory environment has struggled to keep pace with rapid innovation, creating a need for better frameworks to manage the risks associated with FinTech. Despite these challenges, continued public-private collaboration and investment in digital literacy are seen as essential for maximizing the potential of FinTech to transform the financial landscape in South Africa. The next section presents the rate of FinTech adoption in South Africa.

Table 3. FinTech Adoption in South African Public Sector

FinTech adoption category	Extent of adoption	Adoption rate	Article sources
Mobile payments and digital banking	There has been significant adoption in banking and mobile platforms, with mobile payments enabling access to financial services, especially in urban and rural areas.	High adoption in urban areas with more limited uptake in remote areas due to infrastructure gaps.	[53, 55, 56, 57, 59]
Blockchain technology	Blockchain adoption is being explored, particularly for enhancing governance and financial transactions in the public sector, though progress remains slow.	Low to moderate, still in the exploratory phase with a few pilot projects.	[55, 56, 60, 63]
AI and data-driven FinTech	AI-driven platforms are being integrated into financial services, enhancing financial inclusion and improving risk assessment, though its adoption is still emerging.	Growing but underdeveloped, more prominent in private-sector financial services than in the public sector.	[54, 59, 62, 63]
Digital Financial Services (DFS)	DFS adoption, including mobile payments, is helping expand access to financial services, especially in underbanked populations.	Significant uptake in urban centers; rural adoption still limited due to low financial literacy and access issues.	[53, 54, 55, 63]
Financial inclusion through FinTech	FinTech has improved financial inclusion by providing mobile money services, though full financial inclusion remains challenged by digital literacy and infrastructure gaps.	Significant progress in financial inclusion, especially through mobile banking, but challenges persist in rural areas.	[57, 63, 58, 53]

Table 3 affirms that the adoption of FinTech in South Africa shows significant progress in certain areas, but challenges remain, particularly in rural regions. Mobile payments and digital banking have seen high adoption rates in urban areas, although uptake is slower in remote regions due to infrastructure gaps. Blockchain technology is still in the exploration phase with limited adoption, mostly in pilot projects aimed at improving governance and financial transactions in the public sector. AI and data-driven platforms are growing but remain underdeveloped, with more implementation in the private sector compared to the public sector. Digital Financial Services (DFS), including mobile payments, have significantly expanded financial access, especially in urban areas, although rural populations face limitations due to low financial literacy and access issues. However, while financial inclusion through FinTech has made substantial progress, particularly through mobile money services, challenges like digital literacy and infrastructure gaps continue to hinder full inclusion, especially in rural areas. The next section presents the relevance of adopting Fintech in South African public financial management.

Table 4. The relevance of adopting FinTech in South African public financial management

Relevance of adopting FinTech	Explanation	Sources
Improved efficiency in public sector operations	FinTech adoption can automate financial processes, reduce manual tasks and increase operational efficiency in government financial management. This can lead to quicker processing of payments, tax filings, and other financial activities.	[53, 63, 55]
Increased transparency and accountability	Implementing FinTech solutions such as blockchain and digital payments can create transparent financial systems, making it easier to track and audit public funds. Blockchain offers a tamper-proof ledger, which can reduce fraud and increase public trust in financial processes.	[53, 63, 59, 58]
Better financial inclusion	FinTech can help expand access to financial services, especially for underserved populations. This is particularly relevant for local municipalities where traditional banking systems may not be easily accessible.	[57, 58, 55]
Cost reduction and increased access to services	Digital platforms such as mobile banking and e-wallets can reduce transaction costs, making it easier for citizens to access government services and pay taxes, while also improving financial inclusion.	[55, 53, 63]
Support for policy and governance improvements	FinTech can play a key role in enhancing public sector governance by providing tools for financial oversight and policy compliance. Automation of financial management systems allows for more effective resource allocation and monitoring by government entities.	[54, 53, 59]
Enhanced risk management	Advanced FinTech solutions like AI can improve risk assessment and fraud detection, helping government agencies identify potential financial risks earlier.	[57, 62, 63]

Table 4 depicts that the adoption of FinTech in the public sector offers several significant benefits. It can enhance efficiency by automating financial processes, reducing manual tasks, and speeding up activities such as payments and tax filings. The use of FinTech, including blockchain and digital payments, promotes transparency and accountability, making it easier to track and audit public funds, while minimizing fraud. FinTech solutions improve financial inclusion by extending access to underserved populations, particularly in areas with limited access to traditional banking. Digital platforms such as mobile banking and e-wallets reduce transaction costs, enabling easier access to government services. FinTech also supports policy and governance improvements by automating financial management systems, leading to better resource allocation and monitoring. Furthermore, advanced solutions like AI assist in enhancing risk management by improving fraud detection and early identification of financial risks.

7. Discussion

The adoption of Financial Technology (FinTech) in public sector financial management in South Africa has become increasingly important as the country seeks to modernize its financial systems and improve governance [53]. With the challenges faced by traditional financial systems such as inefficiencies in processing payments and tax filings [56], the public sector has turned to FinTech solutions to enhance the efficiency and transparency of financial management processes. South Africa, like many other developing nations, faces significant barriers such as outdated infrastructure, digital literacy gaps, and regulatory challenges that have slowed the adoption of FinTech in the public sector [63]. However, FinTech, blockchain technology, and Artificial Intelligence (AI) could play a crucial role in addressing these challenges and improving public financial management. The extent of FinTech adoption in the public sector of South Africa has varied, with certain innovations achieving more widespread acceptance than others. The integration of digital financial services (DFS), such as mobile payments and e-wallets has seen significant adoption especially in urban areas [59]. This adoption has contributed to increasing financial inclusion as these platforms make financial services accessible to previously underserved populations. However, rural areas have faced slower adoption rates, primarily due to infrastructural gaps, low financial literacy, and limited access to digital devices [53]. Research by [55] highlight that while urban centers have embraced digital banking and payment systems, rural regions are still grappling with the challenges of data costs and lack of adequate infrastructure. Blockchain technology and AI, though recognized for their potential in enhancing public sector governance and financial transactions, have been adopted at a much slower pace, with only a few pilot projects underway in the public sector [54, 60]. The findings suggest that FinTech adoption in the public sector is still in its infancy, with mobile payments leading the charge, but significant gaps remain in terms of the infrastructure and skills required for broader implementation.

The impact of FinTech adoption on the efficiency and accountability of public financial management processes in South Africa has been positive, though challenges persist (58, 63]). One of the key benefits of FinTech is the automation of financial processes, which can significantly reduce manual tasks and streamline government operations. According to [55], the automation of payments and tax filings has led to quicker processing times and greater operational efficiency in urban areas. This efficiency, according to [56], can lead to cost savings, quicker service delivery, and improved access to government services. More so, the transparency provided by digital payments and blockchain technology enhances the accountability of public funds. Blockchain's tamper-proof ledger, for instance, can create a transparent financial system that makes it easier to track and audit public funds, reducing fraud and improving public trust in government financial processes [60]. However, the public sector still faces challenges in scaling these solutions due to infrastructure limitations, digital literacy, and regulatory gaps, as highlighted by [56] and [58]. These barriers hinder the full realization of FinTech's potential to improve public financial management, making it clear that while the adoption of FinTech has made strides, more effort is needed to overcome these systemic obstacles to achieve the desired outcomes of efficiency and accountability.

8. Major Managerial Implications and Conclusion

The key managerial implication of the study is that effective integration of FinTech solutions has the potential to **transform fiscal governance, strengthen transparency, and rebuild public trust** in South Africa's public sector. Digital innovations such as mobile payments, blockchain, and artificial intelligence create opportunities to automate financial processes, reduce administrative inefficiencies, and limit human interference in sensitive transactions. These technologies allow managers to monitor and verify financial activities in real time, improving accountability and ensuring that public funds are used responsibly. Citizens benefit from quicker, more reliable, and easily accessible financial services, which enhances their confidence in government operations. The impact as presented in Figure 2 depicts that more transparent and responsive public finance system promotes ethical stewardship, reduces the risk of corruption, and fosters stronger trust between the state and its people.



Figure 2. Major managerial implications of adopting Fintech in the public sector

In conclusion, while the adoption of FinTech in the public sector of South Africa has made significant strides, particularly in urban areas, there are still considerable challenges that need to be addressed. Innovations such as mobile payments and digital banking have improved access to financial services, contributing to greater financial inclusion and operational efficiency in government processes. However, the pace of adoption in rural areas remains slower due to infrastructure gaps and low digital literacy. Although technologies like blockchain and AI hold the potential to enhance transparency, accountability, and governance in public financial management, their full integration has been hindered by regulatory challenges and resistance to change. While the positive impacts of FinTech on public sector efficiency and accountability are evident, a more comprehensive approach involving better infrastructure, digital literacy, and stronger regulatory frameworks is crucial for realizing its full potential and ensuring more inclusive, transparent, and efficient public financial management in South Africa.

9. Recommendations

To fully harness the potential of FinTech in South African public sector, several key actions are needed. First, there must be a concerted effort to improve digital infrastructure, especially in rural areas, to ensure equal access to financial services for all citizens. This includes enhancing internet connectivity, reducing data costs, and ensuring access to digital devices. Furthermore, targeted digital literacy programs should be implemented to empower citizens and public sector employees to effectively use FinTech solutions. Strengthening regulatory frameworks is also crucial to address the risks associated with emerging technologies like blockchain and AI, ensuring that these innovations are implemented securely and transparently. Finally, fostering public-private partnerships could help bridge the gap between innovation and implementation, driving the digital transformation of government services. South Africa can unlock the full potential of FinTech, improving financial management, governance, and financial inclusion across the country by focusing on these areas.

10. References

- [1] Jalal A, Al Mubarak M, Durani F. Financial technology (fintech). In: Artificial intelligence and transforming digital marketing. Cham: Springer Nature Switzerland; 2023. p. 525-36.
- [2] Kumari A, Devi NC. The impact of fintech and blockchain technologies on banking and financial services. *Technol Innov Manag Rev.* 2022;12(1/2).
- [3] Zeidy IA. The role of financial technology (FINTECH) in changing financial industry and increasing efficiency in the economy. COMESA Monetary Institute. 2022;1-20.
- [4] Giglio F. Fintech: A literature review. *Eur Res Stud J.* 2021;24(2B):600-27.

-
- [5] Broby D. Financial technology and the future of banking. *Financ Innov.* 2021;7(1):47.
- [6] Enwereji P, Uwizeyimana DE. Managing strategy-culture dichotomies in South African Municipalities: a payment culture perspective. 2021.
- [7] Enwereji PC, Portgeiter M. Factors to enhance a responsible payment culture for municipal services: a qualitative review. *Gender Behav.* 2020;18(1):14910-24.
- [8] Mazambani L, Mutambara E. Predicting FinTech innovation adoption in South Africa: the case of cryptocurrency. *Afr J Econ Manag Stud.* 2019;11(1):30-50.
- [9] Hornuf L, Safari K, Voshaar J. Mobile fintech adoption in Sub-Saharan Africa: A systematic literature review and meta-analysis. *Res Int Bus Finance.* 2024;102529.
- [10] Coetzee J. Risk Aversion and the Adoption of Fintech by South African Banks. *Afr J Bus Econ Res.* 2019;14(4).
- [11] Matsepe NT, Van der Lingen E. Determinants of emerging technologies adoption in the South African financial sector. *S Afr J Bus Manag.* 2022;53(1):2493.
- [12] Mothobi O, Kebotsamang K. The impact of network coverage on adoption of Fintech and financial inclusion in sub-Saharan Africa. *J Econ Struct.* 2024;13(1):5.
- [13] Enwereji PC, Uwizeyimana D. Exploring the key factors that can enhance municipal financial accountability in Africa: Experience from South Africa. *Afr Renaissance.* 2019;16(Spec Issue 3):143-65.
- [14] McCallum W, Aziakpono MJ. Regulatory sandbox for FinTech regulation: Do the conditions for effective adoption exist in South Africa? *Dev South Afr.* 2023;40(5):1100-16.
- [15] Hornuf L, Safari K, Voshaar J. Mobile fintech adoption in Sub-Saharan Africa: A systematic literature review and meta-analysis. *Res Int Bus Finance.* 2024;102529.
- [16] Matsimbi KH. Factors influencing Fintech adoption among the unbanked in South Africa [master's thesis]. Johannesburg: Univ. of the Witwatersrand; 2024.
- [17] Mazambani L, Mutambara E. Predicting FinTech innovation adoption in South Africa: the case of cryptocurrency. *Afr J Econ Manag Stud.* 2019;11(1):30-50.
- [18] Runyowa L. Perceived impact of fintech on financial inclusion in South Africa [PhD thesis]. Johannesburg: Wits Business School; 2021.
- [19] Florence NE, Enwereji PC. Poverty in Africa and Attainment of the Millennium Development Goal. In: *Political Economy of Colonial Relations and Crisis of Contemporary African Diplomacy.* Singapore: Springer Nature; 2023. p. 91-107.
- [20] Adekoya AA. Public Financial Management in Nigeria: The goals, concepts, legal and institutional framework, and reforms for good governance. *Int J Manag Econ Invention.* 2023;9(5):2935-46.
- [21] Slazus BJ, Bick G. Factors that influence FinTech adoption in South Africa: a study of consumer behaviour towards branchless mobile banking. *Athens J Bus Econ.* 2022;8(1):43-64.
- [22] Burugulla JKR. The Future of Digital Financial Security: Integrating AI, Cloud, and Big Data for Fraud Prevention and Real Time Transaction Monitoring in Payment Systems. *MSW Manag J.* 2024;34(2):711-30.
- [23] Coetzee J. Strategic implications of Fintech on South African retail banks. *S Afr J Econ Manag Sci.* 2018;21(1):1-11.
- [24] Mazambani L, Mutambara E. Predicting FinTech innovation adoption in South Africa: the case of cryptocurrency. *Afr J Econ Manag Stud.* 2019;11(1):30-50.

- [25] Luu L, Petratos PN, Nguyen T, Le V. Financial technology (fintech). In: A Practical Guide to Financial Services. Routledge; 2021. p. 143-71.
- [26] Aroba OJ, Abayomi A. An implementation of SAP enterprise resource planning – A case study of the South African revenue services and taxation sectors. *Cogent Soc Sci.* 2023;9(1):2228060.
- [27] Heydenrych C. Fostering the Effectiveness of Reportable Arrangements Provisions by Enhancing Digitalisation at the South African Revenue Service [master's thesis]. Pretoria: Univ. of Pretoria; 2020.
- [28] Sithole VL, Mbukanma I. Prospects and Challenges to ICT Adoption in Teaching and Learning at Rural South African Universities: A Systematic Review. *Res Soc Sci Technol.* 2024;9(3):178-93.
- [29] Delwa Q. Accelerating Digital Government through Public Sector Innovation in South Africa: The Role of Open Government Data [master's thesis]. Johannesburg: Univ. of the Witwatersrand; 2024.
- [30] Takundwa S. FinTech Regulation in South Africa [master's dissertation]. Cape Town: Univ. of Cape Town; 2022.
- [31] Didenko A. Regulating FinTech: Lessons from Africa. *San Diego Int Law J.* 2017;19:311.
- [32] Bagwe C. Regulatory Sandbox: A Testing Ground for RegTech Solutions in FinTech. 2024.
- [33] Enwereji PC. Enhancing financial accountability in South African local municipalities: a consequence management viewpoint. *Financ Stud.* 2022;26(4).
- [34] Shuping B. Factors influencing municipal managers' compliance with the Municipal Financial Management Act [master's thesis]. Johannesburg: Univ. of Johannesburg; 2021.
- [35] Iheanachor N, Umukoro I. Partnerships in digital financial services: An exploratory study of providers in an emerging market. *J Bus Res.* 2022;152:425-35.
- [36] Pittaway JJ, Montazemi AR. Know-how to lead digital transformation: The case of local governments. *Gov Inf Q.* 2020;37(4):101474.
- [37] Jayalath JARC, Premaratne SC. Analysis of key digital technology infrastructure and cyber security consideration factors for fintech companies. *Int J Res Publ.* 2021;84(1):128-35.
- [38] Pandey N, de Coninck H, Sagar AD. Beyond technology transfer: Innovation cooperation to advance sustainable development in developing countries. *Wiley Interdiscip Rev Energy Environ.* 2022;11(2):e422.
- [39] Uña G, Verma A, Bazarbash M, Griffin MNN. Fintech payments in public financial management: benefits and risks. *Int Monet Fund.* 2023.
- [40] Motloug OM. Governance of digital innovation in the Public Sector in South Africa [doctoral dissertation]. Mahikeng: North-West Univ.; 2022.
- [41] Frota L, Chitiga-Mabugu M, Mazenda A. Revealing Factors Influencing Digital Transformation in South Africa's Social Security Organisations. *J Public Aff.* 2025;25(1):e70006.
- [42] Matlala ME, Ncube TR, Parbanath S. The state of digital records preservation in South Africa's public sector in the 21st century: a literature review. *Rec Manag J.* 2022;32(2):198-212.
- [43] Modiba MM. A digital transformation framework for South African financial service providers [doctoral dissertation]. Mahikeng: North-West Univ.; 2020.
- [44] Portion UC, Chidinma NI, Nwokike CE. Digital transformation of public services and its influence on the business landscape in African states. *Int J Res Publ Rev.* 2023;4(9):467-72.
- [45] Khumalo A. Investigating the digital divide in South Africa as it relates to financial services [master's thesis]. Johannesburg: Univ. of the Witwatersrand; 2024.

- [46] Franklin A, Gantela S, Shifarrow S, Johnson TR, Robinson DJ, King BR, et al. Dashboard visualizations: Supporting real-time throughput decision-making. *J Biomed Inform.* 2017;71:211-21.
- [47] Liyanapathirana T, Ranjani RPC. Cash management system and suggestions for policy formulation for E-cash management system in Sri Lanka. *J Emerg Trends Econ Manag Sci.* 2017;8(1):75-81.
- [48] Verno J. Risk management in corporates; can digitalization help improve risk management in cash management? 2019.
- [49] Fazekas M, Blum JR. Improving public procurement outcomes. *Policy Res Work Pap.* 2021;2(4):2-3.
- [50] Hochstetter J, Vásquez F, Diéguez M, Bustamante A, Arango-López J. Transparency and E-government in electronic public procurement as sustainable development. *Sustainability.* 2023;15(5):4672.
- [51] Creswell JW. *Research design: Qualitative, quantitative and mixed methods approaches.* 4th ed. Thousand Oaks: Sage; 2014.
- [52] Dan V. Empirical and non-empirical methods. *Int Encycl Commun Res Methods.* 2017;1:1-3.
- [53] Cele SK, Mlitwa NW. Fintechs in South Africa: Impact on regulation, incumbents and consumers. *S Afr J Inf Manag.* 2024;26(1):1766.
- [54] Mazambani L, Mutambara E. Predicting FinTech innovation adoption in South Africa: the case of cryptocurrency. *Afr J Econ Manag Stud.* 2020;11(1):30-50.
- [55] Van Niekerk MG, Phaladi NH. Digital financial services: Prospects and challenges. *Potchefstroom Electron Law J.* 2021;23(1).
- [56] Shibambu A. Transformation of digital government services in the public sector in South Africa. *Afr Public Serv Deliv Perform Rev.* 2024;12(1):7.
- [57] Shipalana P. Digitising financial services: A tool for financial inclusion in South Africa. *S Afr Inst Int Aff.* 2019;1-38.
- [58] Komna L, Mpungose S. Investigating the impact of digital transformation in the public sector: A case study of the State Information Technology Agency (SITA), South Africa. *Int J Bus Ecosyst Strateg.* 2024;6(4):218-34.
- [59] Hassan AS. Factors driving artificial intelligence adoption in South Africa's financial services sector. *Acad J Interdiscip Stud.* 2024;13(5):394.
- [60] Sibanda B, Basheka B, van Romburgh J. Enhancing governance through blockchain technology in the South African public sector. *Afr Public Serv Deliv Perform Rev.* 2024;12(1):10.
- [61] Wentzel JP, Diatha KS, Yadavalli VSS. An application of a structured model to evaluate business process improvement alternatives. *S Afr J Ind Eng.* 2013;24(2):10-29.
- [62] Cheteni P, Matsongoni H, Umejesi I. Artificial intelligence and its disruptive role in the South African fintech industry. *F1000Res.* 2024;13:1455.
- [63] Cele SK, Gumede V. The role of financial technologies in financial inclusion in South Africa. *J Quant Finance Econ.* 2024;6(1):47-65.