



DIGITAL TRANSFORMATION AND PERFORMANCE OF COMMERCIAL BANKS
IN ZIMBABWE: THE MEDIATING ROLE OF INFORMATION TECHNOLOGY
CAPABILITY

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Approval Of the Thesis

DIGITAL TRANSFORMATION AND PERFORMANCE OF COMMERCIAL BANKS IN ZIMBABWE: THE MEDIATING ROLE OF INFORMATION TECHNOLOGY CAPABILITY

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Abstract

DIGITAL TRANSFORMATION AND PERFORMANCE OF COMMERCIAL BANKS IN ZIMBABWE: THE MEDIATING ROLE OF INFORMATION TECHNOLOGY CAPABILITY

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The need for digital transformation (DT) to address organisational performance challenges has received heightened attention from scholars and practitioners in recent years. Nonetheless, evidence on DT effects on commercial bank performance in the context of developing countries, especially in Zimbabwe, remains scarce as most studies have focused on jurisdictions outside Africa. This study empirically examined the association between DT and the performance of commercial banks in Zimbabwe, with a specific focus on the role of IT capability as a mediating mechanism. In particular, the study assessed the effects of DT on employee productivity, IT innovation, IT capability, and commercial bank performance, and hypothesised positive relationships among these constructs, including an indirect pathway where DT improves bank performance through strengthened IT capability. Using a quantitative study approach and stratified random sampling, the study extracted data from 310 commercial bank employees in Zimbabwe. Structural Equation Modelling (SEM) was applied using SPSS/AMOS to test the proposed relationships. The results show that DT has a positive and significant effect on employee productivity, IT innovation, and IT capability, and that both IT innovation and employee productivity contribute positively to commercial bank performance. Importantly, the study confirms that IT capability positively mediates the relationship between DT and bank performance,

highlighting IT capability as a critical mechanism through which DT yields performance gain. Practically, the study results suggest that commercial bank managers should deepen investment in DT, strengthen employee participation in transformation initiatives, and systematically enhance IT capability to maximise performance outcomes. Policymakers and regulators should create an enabling environment that supports bank digitalisation and capability development. Future research is encouraged to adopt mixed-method and longitudinal designs, incorporate additional mediators and moderators, and expand stakeholder perspectives to strengthen causal inference and contextual relevance.

Declaration

I declare that this thesis was composed by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or professional qualification except as specified.

AI Acknowledgment

Use of AI:

I acknowledge the use of Grammarly (<https://www.grammarly.com/>) and Quilbot (<https://rb.gy/1gk4v7>) to correct grammar and spelling throughout the entire thesis.

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Dedication

To my dear family, who have been the cornerstone of my strength and inspiration throughout this doctoral journey. I dedicate this thesis to the loving memory of my father and my supportive mother, whose encouragement has been a constant motivation. Despite the hardships, they sacrificed to see me through the initial steps of my academic journey and believed in my capabilities. To my siblings, I also owe it to you for your unwavering support and sacrifices.

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List of Abbreviations

AG	Agreed
AVE	Average Variance Expected
BDA	Big Data Analysis
CBP	Commercial Bank Performance
CFA	Critical Factor Analysis
CR	Composite Reliability
DA	Disagreed
DCT	Dynamic Capability Theory
Df	Degrees of Freedom
DOF	Digital Orchestra Framework
DT	Digital Transformation
DV	Discriminant Validity
EFA	Exploratory Factor Analysis
EP	Employee Productivity
GQM	Goal Question Metrics
IFI	Incremental Fit Index
IoT	Internet of Things
IT	Information Technology
ITC	IT Capability
ITN	IT Innovation
KMO	Kaiser–Mayer–Olkin
KMT	Krejcie and Morgan Table
KPI	Key Performance Indicator
MNO	Mobile Network Operator
NFI	Normed Fit Index)
NGO	Non-Governmental Organisation
NPL	Non-Performing Loans
RBZ	Reserve Bank of Zimbabwe
RMSEA	Root Mean Square Error of Approximation
ROA	Return on Assets
ROI	Return on Investment
RPA	Robotic Process Automation
SA	Strongly Agreed
SD	Strongly Disagreed
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
TLI	Tucker-Lewis Index
UC	Uncertain
UREC	Unicaf Research Committee

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CHAPTER 1: INTRODUCTION

1.1. Background of the Study

Digital transformation (DT) has been elevated in the priority matrices for commercial banks across the globe. This top prioritisation has been driven by its potential to reshape the performance of commercial banks worldwide. This is so because of DT's ability to enhance efficiency, competitiveness and overall performance. Consequently, commercial banks seem to be investing significantly in DT initiatives. However, the direct path from DT investment to improved organisational performance is neither automatic nor assured. Emerging research suggests that this relationship is critically mediated by the organisation's inherent IT capability (ITC) (Audy et al., 2023; Do et al., 2022; Jihane & Aziz, 2022). Whether this holds for commercial banks in developing contexts like Zimbabwe remains unknown.

To fully explore this dynamic, this study seeks to ascertain the effect of DT on the performance of commercial banks as well as how IT capability interacts with the relationship between DT and commercial bank performance in Zimbabwe. As a foundation for this study, the following section discusses the global, regional and local perspectives of the study. It begins by defining the core concepts of DT, commercial bank performance and IT capability, thereby establishing a clear framework for the subsequent analysis.

1.1.1. Definition of Core Concepts

The main concepts of this study are commercial bank performance, IT Capability, IT capability mediation and Digital Transformation. The following section defines these concepts and contextualises them to this study.

1.1.1.1. Commercial Bank Performance.

Performance in the context of organisations and banks has seen several definitions (Contu, 2020; Doval, 2019). According to Doval, performance refers to the output of what an organisation produces, measured against what it has set out to achieve. In the context of commercial banks, performance refers to the achievement of key performance indicators (Coulon, 2020). These performance indicators touch on the bank's operational efficiency, the quality of its assets, profitability and customer satisfaction. Several studies have measured performance using both financial metrics (such as Return on Assets, Profits, Return on Equity, and Earnings per Share) and non-financial measures (such as market share and customer satisfaction).

Commercial Bank Performance (CBP) in this study was operationalised as a two-dimensional continuum encompassing both financial and non-financial metrics (Hvolby & Thorstenson, 2001; Joensuu-Salo, S., & Matalamäki, 2023; Kettinger et al., 1997; Länsiluoto et al., 2019; Melville et al., 2004; Powell, 1995). In order to determine the financial performance of commercial banks, the study sought information relating to the Return on Investment (ROI), Cost Reduction and Net Profit. Non-financial performance was measured using indicators capturing process efficiency, customer satisfaction, and market share growth. These indicators were adopted and adapted from prior validated studies and were measured using a 5-point Likert scale (Joensuu-Salo & Matalamäki, 2023; Länsiluoto et al., 2019).

To construct a single composite index for commercial bank performance, the study computed the arithmetic mean for each dimension (financial and non-financial performance). To complement the perceptual measurement above, objective secondary data on Return on Assets (ROA) was used as a measure of commercial bank performance. The ROA for each of the 13 commercial banks (Appendix I) was collected for triangulation purposes.

1.1.1.2. Digital Transformation.

While several authors have defined DT, there is no universally agreed-upon definition of what constitutes DT among scholars. This is because DT is multifaceted and has been defined to encompass a wide range of interpretations across different industries and contexts (Furr et al., 2022; Kumar & Sangtani, 2023). Nonetheless, it has generally been agreed that DT refers to the adoption, infusion and integration of digital technologies into the operations of an organisation, leading to significant changes in how it operates internally, acquires and serves its customers (Kazei & Sengupta, 2022).

Specifically for commercial banks, DT refers to the application of digital technologies in a commercial bank's value chain in a manner that introduces seismic changes in how the bank provides service to its customers (Ortaköy & Özsürünç, 2019). DT encompasses a wide range of commercial bank initiatives that include digitalisation of customer interactions, process automation, implementation of data analytics, and the integration of such emerging technologies as blockchain and Artificial Intelligence (AI).

For the purpose of this study, DT is operationalised through specific and interlinked elements that directly influence bank performance and seem to be mediated by IT capability. These elements include the application of Big Data analytics, the use of social media platforms, mobile technologies and AI. These elements result in process automation and digitisation, data-driven decision making and digital customer engagement, thereby defining the DT of a commercial bank (Basahel, 2023; He et al., 2021; Shehadeh et al., 2023).

Given the lack of consensus in defining DT, this study adopts a measurable operational focus by examining DT through observable banking outcomes. Specifically, DT in this study is operationalised through the extent to which banks: (i) digitise customer-facing services and

channels, (ii) automate workflows and service processes, (iii) implement data analytics to improve decision-making and customer responsiveness, and (iv) integrate emerging digital technologies to support innovation and competitiveness. These DT elements enabled the construct to be empirically tested within the study model, particularly in relation to employee productivity, IT innovation, IT capability and commercial bank performance. For banks to succeed in implementing DT to enhance performance, they must also develop and leverage strong IT capabilities.

1.1.1.3. IT Capability.

IT Capability refers to a company's scope to acquire, deploy, combine, and reconfigure IT resources in an effective manner that will result in the enhancement of work processes and business strategies (Werder & Richter, 2022). It is not limited to technical infrastructure alone but also involves organisational processes, skills, and strategic alignment. IT capability has been divided into reactive and proactive, with the former enhancing work processes while the latter supports business strategies (Ranjbarfard & Mirsalari, 2020).

1.1.1.4. The Mediating Role of IT Capability on DT and Bank Performance.

This refers to the extent to which IT capability influences the relationship between DT and bank performance (Barba-Sánchez et al., 2024). In their studies on the mediation of IT Capability on performance, Ning and Yao (2023) opine that this refers to how IT Capability influences the relationship between organisations and their supply chain objectives. Similarly, Ning & Yao (2023) opine that the mediation of IT capability can be seen in how it interplays with the relationship between DT and change management. These definitions show that mediation refers to the impact that a variable has on a given relationship. In the context of this study, the mediation of

IT capability therefore refers to the extent to which IT capability influences the relationship between DT and commercial bank performance (Kasteli et al., 2022; Yang et al., 2023).

1.1.2. Background of the Study from a Global Perspective

The global business environment has seen rapid technological advancement, and this has forced traditional industries, including commercial banks, to adapt so as to obviate the risk of obsolescence (Masoud & Basahel, 2023). Commercial banks, as linchpins of modern economies, face constant existential threats from digitally native competitors, necessitating a strategic shift toward DT to ensure survival and sustain performance (Modiba et al., 2020; Varma et al., 2022). In order to catalyse this relationship, it has been observed that global institutions have used their IT capabilities (Ranjbarfard & Mirsalari, 2020; Rostika, 2023). Several authors (Naimi-Sadigh et al., 2021; Tanda & Schema, 2019; Haryanti et al., 2023) opine that globally, Europe and Asia have led in implementing advanced digital strategies, with substantial progress reported in digital customer interfaces and end-to-end process redesigns.

However, the rise of Fintechs and BigTechs has intensified competition, challenging traditional banks by offering faster, cheaper and more convenient digital financial services (Kaondera et al., 2023; Katuka et al., 2023; Moyo et al., 2019; Shambira, 2020). This disruption has compelled banks to accelerate their DT efforts to preserve market share and sustain performance.

According to Wang (2023), while DT priorities have received elevated attention, the return on these investments has been mixed. Wang (2023) shows that 69% of European banks reported an increase in digitalisation aimed at DT, while 88% have initiated DT-related end-to-end processes. Asian banks have made significant strides in implementing DT, while American banks

have adopted several strategies, such as in-house development as well as collaborating with Fintechs (Tanda & Schena, 2019; Shashikala, 2019).

Similarly, recent research by Ernst & Young has indicated that "90% of global companies are implementing DT in their strategic plans" (Sia et al., 2021, p. 35). While there has been such a high uptake of DT, the impact on performance has been mixed in the literature. Some studies have shown that banks in Asia have improved their performance through DT (Boufounou et al, 2024; Sia et al., 2021; Zuo et al., 2021), while others indicate that the impact on performance is not only negative but also dependent on bank size (Nguyen-Viet & Nguyen, 2023). Such inconsistent results trigger a need for further inquiries into the impact of DT on commercial bank performance.

The necessity for a successful DT originates from the fact that commercial banks have been subjected to the harsh effects of environmental changes such as the emergence of big tech and fintechs, as well as evolving client needs (Jihane & Aziz, 2022; Tran et al., 2022). Fintechs have been effective in digitally reforming and entering the banking market by delivering lower-cost services (Jihane & Aziz, 2022; Wewege et al., 2020), higher-quality services (Jihane & Aziz), and faster and more convenient services (Jihane & Aziz; Iluba & Phiri, 2021). The impact of these activities on the performance of commercial banks has not been positive. Banks have largely responded to these by implementing DT. However, the results of its impact on performance have not been consistent in the literature. Some studies have suggested that for DT to impact performance positively, organisations need to have a strong IT capability (Carcary, M., & Doherty, 2022; Rostika, 2023). This, therefore, necessitates further inquiries into what impact DT will have on the performance of commercial banks, considering the mediating role of IT capacity.

Despite the potential benefits accruing from DT (Albukhitan, 2020; Kitsiosis et al., 2021; Rego et al., 2021), it has been observed that a significant portion of DT efforts by commercial

banks globally have failed due to implementation challenges, thereby negatively impacting bank performance (Diener & Špaček, 2021). According to Tabrizi et al. (2019), DT implementation failure rates globally have been as high as 70% bringing into question whether DT indeed positively improves organisational performance.

Likewise, Orji (2019) discovered that many DT programs were either dying or on the verge of failing, as seen in the cases of Nike, Burberry, and P&G, all of whom invested heavily in DT but failed (Davenport & Westerman, 2018). These DT initiatives were seen to be costly for these organisations and negatively impacted performance. What is not clear in these studies, however, is how IT capability was used to mediate the relationship between DT and performance, suggesting the necessity for further studies to investigate the strength of the interplay between these constructs.

Studies on the Chinese commercial banks indicated that DT's impact on performance (Do et al., 2022; Lee & Shin, 2018) is attributed to the role it has been seen to play in railroading Organisational performance by impacting operational efficiency, customer service, employee productivity, and competitive positioning (Abdulquadri et al., 2021; Albukhitan, 2020; Masoud & Basahel, 2023). Specifically, it has been seen to impact customer acquisition using data analytics, improve lending through predictive analytics, enhance employee productivity, and spur IT innovation (Hokonya, 2024). Artificial Intelligence (AI) has been used to enhance customer service, and DT has been applied to internal processes of commercial banks as they seek to streamline processes and enhance performance (Radenković et al., 2023).

McKinsey and Company (2021) show that Fintech has applied successful DT that has resulted in 40% of customers leveraging it, with 90% of such customers being satisfied with the service at the expense of commercial banks. Another study by KPMG (2017) revealed that 84%

of millennials were open to starting a banking relationship with a big tech company. This presents performance challenges for banks, given that these competitors are reducing the market share of banks.

Sia et al. (2021) studied DT implementation at DBS Bank in Singapore using a case study approach and discovered that the bank improved all its operations and financial performance through DT. Zuo et al.'s (2021) studies considered the Chinese commercial banking sector; Boufounou et al. (2022) studied DT in Greece; and Tran et al. (2022) assessed DT in Hungary using a case study of two banks. While these studies helped illuminate the impact of DT on commercial bank performance in specific contexts, they did not address the mediating role of IT capability. The question of how DT ensures improved performance for commercial banks in Zimbabwe thus becomes a matter of concern, given that these studies focused on different geographical contexts and also did not consider how IT capabilities influence the said relationship. This suggests the need to examine the interlink between DT and the performance of Zimbabwean commercial banks and how IT capabilities affect this interplay.

1.1.3. Background of the Study from a Regional Perspective

The DT in the context of performance in the commercial banking sector in Zimbabwe, considering the mediation of IT capability, cannot be isolated but needs to be viewed in the African context. In developing regions, including Africa, the uptake of DT has been slower and uneven due to infrastructural limitations, skills shortages, economic instability and legacy systems (Kraus et al., 2021; Lanzolla et al., 2020; Prügl, 2021; Nambisan et al., 2019; Paul et al., 2024; Verhoef et al., 2021).

The African environment is characterised by the rapid proliferation of mobile money, epitomised by M-Pesa in Kenya, undergirded by Mobile Network Operators (MNOs) digital

capabilities. According to Chitokwindo et al. (2021), these have pressured commercial banks to digitally transform or become irrelevant. It has been revealed by Khams (2022), who studied the Egyptian banking sector, that DT assists commercial banks in successfully fending off Fintech competition, thereby ensuring sustainable performance by commercial banks. That as it may, the digital divide between Africa and the developed world seems to widen further. According to Avevor (2024), over 90% (in 2020) of the population in both North America and Europe had access to 4G network, which is a key enabler in DT. In contrast, only 52% of Africa's population had the same access during the same period.

Furthermore, the use of IT capability in enhancing the relationship between DT and commercial bank performance has not become a mere competitive strategy; rather, this has morphed into a vital adaptation to the widespread economic informalisation, currency volatility, a young tech-savvy population and a plethora of other challenges confronting the commercial banking sector.

The DT journey for commercial banks in developing nations has been markedly distinct from the global north and east. According to Shaavadze (2021), most banks in developing nations are often still grappling with building foundational IT capabilities, reliable connectivity, secure data centres, digital literacy and all this compounded by erratic power supplies and legacy systems. It appears this state of affairs in the developing regions dovetails with what is obtaining in Zimbabwe (Kaondera et al., 2023). In contrast, commercial banks from the global north and east mainly focus on AI and Big Data analytics.

In order to accelerate the impact of DT on commercial bank performance, Shaavadze (2021) posits that commercial banks in developing nations need to leverage IT capability, as it provides the bridge that enables investment in digital tools to translate into actual performance

gains. This is supported by studies in Nigeria and Ghana (Avevor, 2024) that have shown that robust IT governance and agile digital skills have been key in the successful launch of applications that have driven growth.

The impact of IT capability on the relationship between DT and commercial bank performance has been studied in South Africa. According to Bvuma and Marnewick (2020), sustainable performance is mediated by how well technology is absorbed by the organisation. Similarly, studies by Mogoale et al. (2021) conclude that IT capability has been critical in enhancing the performance of South African organisations. In contrast, similar studies by Modiba et al. (2020) showed that the impact of IT capability on the South African Financial services industry is less understood. This was attributed to the unique complexities related to infrastructure and cultural diversity. Such conflicting findings suggest the need for further inquiries in the African context.

1.1.4. Study Background from a Local Perspective

As of 31 December 2022, the Zimbabwean banking sector comprised twenty-seven banking institutions, of which thirteen were commercial banks, 3 building societies, 7 deposit-taking microfinance institutions, 3 development financial institutions and 1 savings bank (The Reserve Bank of Zimbabwe, 2022). In a World Bank study, Kunicova et al. (2021) noted that 96% of transactions in Zimbabwe are done digitally, thereby providing a strong digital payment system that can form the backbone of an effective DT. While this study hints that the country is well placed to accrue benefits from implementing DT, it is silent on its impact on commercial bank performance as well as on how IT Capability mediates this relationship.

Specifically, the Zimbabwean banking system remains fragile, with non-performing loans (NPLs) constituting around 7% of total bank loans, threatening the performance of commercial

banks (Katuka et al., 2023). In addition, Katuka et al. (2023) observe that the structure of the banking system is highly concentrated, given that the top three banks hold a market share of 76%. Compounding these challenges is the observation that commercial banks in Zimbabwe have been losing ground to MNOs with a recorded reduction of 2.7% since 2016 (Kaondera et al., 2023). To deal with these challenges and the persistent economic problems, commercial banks in Zimbabwe have advanced from the traditional roles of simply being deposit takers to embracing DT to enhance performance. Whereas studies elsewhere have explored the interlink between DT and commercial bank performance, this area remains underexplored in the context of Zimbabwean commercial banks.

Furthermore, the Zimbabwean commercial banking sector has endured significant shocks over the decades that include hyperinflation, dollarisation and now DT (Tsauroi, 2018). In addition, mobile network platforms such as Ecocash, Netchash, and Telecash have put pressure on Zimbabwean banks to implement DT to attain a sustainable competitive advantage (Kaondera et al., 2023). Moreover, the recent COVID-19 pandemic dented commercial banks' performance, thus necessitating a rapid deployment of viable DT (Boufounou et al., 2022). According to Khams (2022), the prevalence of the Coronavirus required commercial banks to rethink their business models by adopting and implementing successful DT.

Despite this observation, DT adoption in Zimbabwe has been seen to be slower relative to other African countries (Kaondera et al., 2023). Furthermore, Kaondera et al. posit that because of the slow DT implementation, Zimbabwean banks' market share has receded by 2.7% since 2016, negatively impacting performance. Could the implementation of DT leveraging IT capability result in improved performance for banks in Zimbabwe? This can only be clarified upon carrying out further studies in this domain.

Although some studies in Zimbabwe have considered some aspects of DT, it appears there is a paucity of literature that has considered the mediating role of IT Capability in the Zimbabwean context. Studies by Chindudzi et al. (2020) considered "how digital banking impacts the performance of commercial banks in Zimbabwe" but did not consider the full construct of DT. Kaondera et al. (2023) studied how DT can be applied to customer relationship management by Zimbabwe's commercial banks. Hokonya (2024) instituted a study on how DT impacts customer satisfaction. In all cases, the role played by IT capability was not considered. Additional studies are thus obligatory to establish the impact of DT on commercial bank performance, considering the role of IT capacity.

A recurring theme in the literature is the mediating role of IT capability, which encompasses the infrastructure, skills, processes and alignment needed to support and leverage digital technologies (Werder & Richter, 2022; Ranjbarfard & Mirsalari, 2020). Strong IT capability can enhance DT outcomes and improve performance (Kasteli et al., 2022; Yang et al., 2023; Barba-Sánchez et al., 2024; Kohli & Melville, 2019). However, findings remain inconsistent. Some studies find insignificant or even negative effects, arguing that IT capability may hinder performance in the short term due to high investment costs or misaligned digital strategies (Sutanto et al., 2024; Shanti et al., 2023). These contradictions point to the need for more context-specific investigations, especially in developing, high-risk environments such as Zimbabwe.

Existing Zimbabwean studies have examined aspects of digital banking, customer satisfaction and digital marketing (Chinakidzwa, 2020; Chindudzi et al., 2020; Hokonya, 2024), but none have comprehensively assessed how DT influences commercial bank performance

through IT capability, nor how DT interacts with employee productivity and IT innovation. This creates a significant empirical and theoretical gap.

Against this background, this study investigates how digital transformation affects the performance of commercial banks in Zimbabwe, focusing on the mediating role of IT capability and the influence of DT on employee productivity and IT innovation. The study aims to generate insights that can guide strategy formulation, strengthen managerial decision-making and support evidence-based policymaking within the Zimbabwean banking sector.

1.2. Statement of the Problem

Although digital transformation (DT) is widely regarded as a strategic enabler of improved organisational performance, empirical evidence on its effects in the banking sector remains inconsistent. At the same time, meta analyses indicate that DT can lead to 14% -22% improvement in performance due to positive outcomes such as improved efficiency, innovation and competitiveness (Boufounou et al., 2024; Sia et al., 2021; Zuo et al., 2021) in advanced and Asian economies, other studies demonstrate negative or insignificant effects arising from high implementation costs, organisational resistance, digital skill gaps and operational disruptions (Kadur & Rajshekar, 2022; Reis & Melao, 2023; Tran et al., 2023; Nguyen-Viet & Nguyen, 2023) showing that over 30% of major DT projects in banking fail to meet the intended objectives.

These contradictions highlight an empirical gap regarding the extent to which DT improves bank performance, and this is problematic for academicians, policymakers and banking practitioners because it limits evidence-based decision-making on DT investments, especially in contexts where transformation costs are high and failure risks are substantial. Furthermore, this contradiction presents a critical dilemma: whether DT investments are reliable performance drivers or risky ventures with uncertain payoffs.

A growing body of literature suggests that IT capability may explain these mixed results because it determines an organisation's ability to deploy, integrate and leverage digital technologies effectively (Kasteli et al., 2022; Yang et al., 2023; Barba-Sánchez et al., 2024; Kohli & Melville, 2019). However, findings about its mediating role are also inconsistent. Some studies confirm significant mediation effects, whereas others report weak or even negative influence, particularly in resource-constrained environments (Sutanto et al., 2024; Shanti et al., 2023). Furthermore, the interplay between DT, employee productivity, and IT innovation as they collectively influence bank performance is not adequately conceptualised. This creates a theoretical gap, as the mechanisms through which IT capability strengthens or limits DT outcomes remain unclear, especially in developing-country banking systems.

The overwhelming majority of studies are situated in developed economies as well as Asian countries (Cappa et al., 2020; Xie & Wang, 2023). Zimbabwean commercial banks operate under distinct challenges which present a unique context. These severe contextual pressures include economic instability, high non-performing loans, intense competition from mobile money operators, and uneven DT adoption across banks (Tsauroi, 2018; Kaondera et al., 2023; Katuka et al., 2023). While over 90% of national transactions are now processed digitally (Kunicova et al., 2021), little is known about whether DT initiatives translate into improved commercial bank performance, or how IT capability influences this relationship. Commercial banks face intense competition from MNOs that capture 80% of person-to-person payments and are responsible for the reduction in commercial bank market share by 2.7% annually since 2016 (Kaondera et al., 2021; RBZ, 2023). Existing Zimbabwean research remain narrow in scope, focusing mainly on digital banking, customer satisfaction and digital marketing (Chinakidzwa, 2020; Chindudzi et al., 2020; Hokonya, 2024), with little attention to the combined effects of DT, IT capability, IT

innovation and employee productivity. This creates a contextual gap and leaves Zimbabwean commercial bank managers with little evidence-based models tailored to their volatile environment, underscoring the need for an evidence-based investigation into how DT affects the performance of Zimbabwean commercial banks.

If this research problem remains unaddressed, Zimbabwean banks risk misallocating scarce capital toward costly DT initiatives that may fail. This may lead to continued weakened competitiveness, eroded profitability and increased systemic vulnerability in the commercial banking sector. In essence, this worsens inefficiencies, intensifying customer attrition to fintech and mobile money competitors, and weakening competitiveness. In addition, policymakers will lack the insights needed to craft effective DT and ITC strategies to help CBP. Such outcomes have broader consequences for financial sector stability, credit provision to businesses, and the achievement of national economic development goals. Consequently, there is a strong need for context-specific evidence to clarify how DT affects the performance of commercial banks in Zimbabwe and to determine the mediating role of IT capability while accounting for the roles of employee productivity and IT innovation as critical transformation mechanisms.

1.3. Purpose of the Study, Research Aims, and Objectives

This section discusses the purpose of the study, the research aims, and the study objectives. According to Dudkowski (2021), this is critical as it establishes the framework of the current investigation and guides the methodological approach of the study. Furthermore, this directs the research, facilitates evaluation and gives context to the investigation.

1.3.1. Purpose Statement

The purpose of this quantitative study was to examine how digital transformation (DT) influences the performance of commercial banks in Zimbabwe, with a specific focus on the

mediating role of IT capability. Although Zimbabwean commercial banks have increasingly invested in DT in response to operational, competitive and economic pressures, there is limited empirical evidence on whether these initiatives translate into measurable performance improvements. By analysing the relationships among DT, IT capability, employee productivity, IT innovation and commercial bank performance, this study provides insight into how banks can strengthen their digital strategies and leverage IT capability to maximise the effectiveness of DT initiatives.

Guided by an explanatory, cross-sectional survey design, the study draws on three theoretical lenses: the Technology Acceptance Model (TAM), which informs technology adoption behaviours; the Digital Orchestra Framework (DOF), which explains coordinated digital capability integration; and the Dynamic Capabilities Theory (DCT), which explains how firms reconfigure resources to achieve competitive advantage. These theories collectively inform the investigation of how DT affects key organisational variables and how IT capability mediates the DT performance relationship.

Primary data were collected from employees across all thirteen commercial banks in Zimbabwe. A final sample of 310 respondents was selected through stratified random sampling, based on population estimates from the Reserve Bank of Zimbabwe. The sample size was determined by triangulating G*Power 3.1.9.7 and Krejcie and Morgan's (1970) table to ensure adequate statistical power. Data were collected using a structured questionnaire aligned with the study objectives. In addition, Secondary data on ROA for the period 2022 to 2024 was systematically collected from published annual reports. This objective financial data was used to triangulate the perceptual performance measures obtained from the survey.

1.3.1.1. Research Aim

This study aimed to analyse the effect of digital transformation (DT) on the performance of commercial banks in Zimbabwe, and to determine whether IT capability mediates this relationship. It sought to examine how DT (independent variable) interacts with IT capability, IT Innovation, Employee Productivity, and Commercial Bank Performance (dependent variables). The study aimed at measuring how IT capability (mediating variable) influences the relationship between DT and CBP. In addition, the study sought to investigate the effects of DT, ITC, ITN, and EP (independent) variables on CBP (dependent) variable.

1.3.1.2. Specific Research Objectives.

To achieve the study aim, the following specific objectives were formulated:

- i. To determine the extent to which digital transformation (DT) influences the performance of commercial banks in Zimbabwe.
- ii. To examine the effect of digital transformation (DT) on IT capability in Zimbabwean commercial banks.
- iii. To determine the effect of digital transformation (DT) on employee productivity in Zimbabwean commercial banks.
- iv. To ascertain the effect of digital transformation (DT) on IT innovation within Zimbabwean commercial banks.
- v. To determine the effect of IT innovation on the performance of commercial banks in Zimbabwe.
- vi. To assess the extent to which IT capability influences commercial bank performance in Zimbabwe.

- vii. To determine the effect of employee productivity on commercial bank performance in Zimbabwe.
- viii. To examine if IT capability mediates the relationship between digital transformation and the performance of commercial banks in Zimbabwe.

1.4. Nature and Significance of the Study

To achieve the objectives stated above, this study was done using specific study methods, design, data collection, and analysis procedures. Further discussion on these will be done below under the nature of the study section. The research approach, research philosophy and research strategy will be explained below. In addition, the study justification will be given under the study significance section, and this will outline why there was a need to carry out this research.

This study adopted a quantitative research approach aimed at statistically examining the relationship between DT, employee productivity, IT capability, IT innovation, and commercial bank performance, considering the mediation role of IT capability. The quantitative orientation is appropriate given the study's objective of testing hypothesised relationships among clearly defined and measurable variables, rather than exploring subjective meanings or lived experiences. By focusing on numerical data obtained from commercial bank employees, the study seeks to generate generalisable and objective evidence regarding how digital transformation influences organisational performance outcomes in the Zimbabwean banking sector. The quantitative nature of the study aligns with its positivist philosophical stance and supports the use of inferential statistical techniques to establish the strength, direction, and significance of the relationships under investigation (Scalcău, 2023).

While DT has received substantial scholarly attention, its theoretical explanation in relation to commercial bank performance, particularly when mediated by IT capability, remains

fragmented and underdeveloped. Existing studies have predominantly examined DT through partial lenses, such as digitalisation processes, digital maturity models, or customer-facing outcomes (Bican, 2020; Gökalp & Martinez, 2022; Taj et al., 2021; Kaondera, 2023). As a result, the theoretical understanding of how DT translates into organisational performance outcomes in commercial banking remains incomplete.

A critical theoretical gap arises from the limited integration of internal organisational mechanisms that explain how DT affects performance. Although prior studies acknowledge the importance of DT, many fail to simultaneously account for employee productivity, IT innovation, and IT capability as interconnected explanatory variables (Maha et al., 2024; Nahed et al., 2024; Rizwana et al., 2024; Widodo et al., 2024). This omission weakens existing theoretical models by overlooking the organisational capabilities and human factors that enable or constrain the effectiveness of DT initiatives. Furthermore, the mediating role of IT capability remains theoretically ambiguous.

While some scholars suggest that IT capability strengthens the DT– performance relationship, others report inconclusive or inconsistent effects, particularly in resource-constrained environments (Hakizimana et al., 2023; Nadkarni & Prüggl, 2021). This lack of theoretical consensus indicates that existing frameworks insufficiently explain the conditions under which DT leads to improved performance. Consequently, there is a need for theory-driven empirical models that explicitly position IT capability as a central mechanism rather than a peripheral construct.

In addition to these conceptual gaps, the literature exhibits a pronounced contextual bias. Most empirical studies on DT and performance are situated in developed or Asian economies, including China, Vietnam, Singapore, Jordan, and selected European countries (Hang et al., 2021; Zuo et al., 2021; Boufounou et al., 2022; Nahed et al., 2024). African contexts and Zimbabwe in

particular remain underrepresented. This is theoretically problematic because DT outcomes are highly context-dependent, shaped by institutional environments, resource availability, regulatory conditions, and workforce capabilities. The limited application of DT theories in Zimbabwean commercial banking restricts their explanatory generalisability.

A further theoretical limitation arises from methodological dominance in the existing literature. Many studies rely on qualitative designs or single-case approaches (Hakizimana et al., 2023; Hokonya, 2024; Masinire et al., 2023; Sia et al., 2021), which, while insightful, constrain theory testing and limit generalisability. The scarcity of large-sample quantitative studies examining multiple DT-related constructs simultaneously leaves a gap in theory validation and refinement.

Considered individually, this study sought to apply existing theories, such as the Dynamic Capabilities Theory (DCT), the Technology Acceptance Model (TAM), as well as the Digital Orchestra Framework (DOF) on the Zimbabwean context. There is a paucity of studies that have applied these theories when examining how IT capability influences the association between DT and commercial bank performance in Africa. By doing so, this study applies these established theories in a new context, thereby advancing these theories in an African context. Furthermore, this study can be seen to have integrated these multiple theories to create a broad framework that assists in explaining the interaction between the independent and dependent variables of the study. It can be seen that this has not been widespread in the literature if one is to consider the Zimbabwean context.

In light of these gaps, the mediating role of IT capability in the relationship between DT and commercial bank performance, together with the roles of employee productivity and IT innovation, remains insufficiently theorised. This study responds to these shortcomings by

empirically examining the interplay between DT, IT capability, IT innovation, employee productivity, and commercial bank performance within the Zimbabwean context. By doing so, it contributes to theory by extending existing frameworks to a new context, clarifying causal mechanisms, and strengthening the explanatory power of DT-related theories in commercial banking.

The practical significance of this study lies in its ability to provide actionable, evidence-based insights for multiple stakeholder groups within and beyond the commercial banking sector. By empirically examining the impact of DT on commercial bank performance while accounting for the mediating role of IT capability, this study offers practical value in the following ways:

For commercial bank management, this study provides empirical evidence on how DT initiatives translate into improved organisational performance through enhanced employee productivity, IT innovation, and IT capability. The findings offer managers a data-driven basis for prioritising digital investments, designing DT strategies, and aligning technology initiatives with organisational capabilities. By identifying IT capability as a critical mediating mechanism, the study assists bank executives in understanding that successful DT is not solely a function of technology adoption but also of developing internal IT infrastructure, skills, and processes. These insights can inform strategic planning, resource allocation, and performance management decisions within commercial banks operating in challenging environments such as Zimbabwe.

For investors, the study provides valuable information on the performance implications of DT in commercial banking. By demonstrating the conditions under which DT positively influences bank performance, the study equips investors with a framework for evaluating the long-term sustainability and competitiveness of banks' digital strategies. Understanding the role of IT capability as a performance enabler allows investors to better assess the risk-return profile of banks

undertaking DT initiatives and to make more informed investment decisions based on evidence rather than assumptions.

From the perspective of bank clients, the study indirectly highlights how DT contributes to improved service delivery, operational efficiency, and innovation within commercial banks. Enhanced employee productivity and IT innovation, both shown to be influenced by DT, translate into faster service, improved digital banking platforms, and more reliable financial products. As a result, customers benefit from improved banking experiences, greater convenience, and more responsive service offerings, which are critical in increasingly digital financial ecosystems.

For academicians and researchers, this study contributes practical insights by extending empirical evidence on DT and organisational performance to an under-researched context. The findings provide a reference point for future studies seeking to examine DT outcomes in developing economies and resource-constrained environments. Moreover, the integrated examination of DT, IT capability, IT innovation, and employee productivity offers a practical research framework that scholars can adapt, refine, or extend in future investigations across different industries or geographical settings.

1.5. Study Strengths and Weaknesses

This study took samples from all thirteen commercial banks in Zimbabwe. While it was better to include all financial institutions and many more variables in this study, the time-bound nature of the study prevented it from including many other variables, as well as using more financial institutions. The study did not consider other financial institutions such as insurance companies, deposit-taking microfinance companies, asset management companies, and building societies, all of which participate in the financial services industry in Zimbabwe. Including these in the study could enrich the inquiry, given the diversity in the way they operate. That as it may,

focusing on commercial banks allowed the study to be completed within the time allocated by the University and within budget due to financial resource limitations.

Although the study's goal was to investigate the association between DT and commercial bank performance, considering the mediating role of IT capacity, a mixed-methods approach that incorporates qualitative data collection, such as interviews and focus groups, to confirm or validate results from the quantitative approach could have been considered. This could then improve the study's rigour. However, the use of a survey instead of a case study in this research is seen to provide the basis for the generalizability of study results.

Nonetheless, the researcher benefited immensely from the criticism received during the thesis journey, thus improving his writing skills. The results from this study will also benefit academia as a basis for further inquiry in this novel area. Furthermore, commercial banks will gain insights into the extent to which the study variables impact their output, thereby helping them to improve their performance, especially taking into consideration the mediation role of IT capability. The generalizability of this quantitative inquiry is advantageous to the sector since banks may be able to apply the results in their context.

1.6. Research Questions and Research Hypotheses

The following section will provide the questions that guided this study. As some scholars observe, research questions are critical as they provide direction for the study in its methodology, collection of data, as well as interpretation of the study outcome (Kross & Giust, 2019). They are therefore considered an important foundation for an inquiry as they have a significant bearing on how useful the outcome of the inquiry will be (Covvey et al., 2023). As a result, this study diligently formulated research questions that would guide the study, and these are provided below.

1.6.1. Research Questions

To achieve the study objectives, it is essential to craft the study questions that align with the respective objectives. Research questions provide the foundation for statistical hypothesis testing and guide the empirical analysis (Barroga & Matanguihan, 2022). Consequently, this study was undergirded by the following questions.

RQ1: What is the direct influence of DT on the performance of commercial banks in Zimbabwe?

RQ2: To what extent does DT affect IT capability in Zimbabwean commercial banks?

RQ3: What is the effect of DT on the productivity of the employees of commercial banks in Zimbabwe?

RQ4: What is the effect of DT on the level of IT innovation by Zimbabwean commercial banks?

RQ5: What is the relationship between the level of IT innovation and the performance of Zimbabwean commercial banks?

RQ6: To what extent does IT capability affect the performance of Zimbabwean commercial banks?

RQ7: What is the effect of employee productivity on commercial bank performance in Zimbabwe?

RQ8: To what extent does IT capability mediate the relationship between DT and commercial bank performance in Zimbabwe?

1.6.2. Research Hypotheses

Based on the research questions above, the following null hypotheses were formulated and tested. In line with statistical hypothesis testing, the null hypotheses (H_0) assume no relationships between variables, while the alternative hypotheses (H_a) posit the existence of positive relationships (Barroga & Matanguihan, 2022). This helps in giving the study a clear direction and

provides a structured approach to investigating the relationship between DT, employee productivity, IT capability and commercial bank performance in Zimbabwe, as well as measuring the extent to which IT capability influences the relationship between DT and commercial bank performance in Zimbabwe.

H₀₁: There is no significant relationship between DT and the performance of commercial banks in Zimbabwe.

H₀₂: There is no significant relationship between DT and the IT capability of Zimbabwean commercial banks.

H₀₃: There is no significant relationship between DT and the productivity of employees in Zimbabwean commercial banks.

H₀₄: There is no significant relationship between DT and IT innovation by Zimbabwean commercial banks.

H₀₅: There is no significant relationship between IT innovation and the performance of Zimbabwean commercial banks.

H₀₆: There is no significant relationship between IT capability and the performance of Zimbabwean commercial banks.

H₀₇: There is no significant relationship between employee productivity and the performance of commercial banks in Zimbabwe.

H₀₈: IT capability does not mediate the relationship between DT and commercial bank performance in Zimbabwe.

1.7. Assumptions, Limitations, Delimitations

This section of the study provides the assumptions, limitations and delimitations of the study on the impact of DT on the performance of commercial banks in Zimbabwe, considering the

mediation of IT capability. This is considered important as it sets the integrity and applicability of the study as well as gives guidance on the study context, thus assisting with the interpretation of the study (Sapkota, 2024).

1.7.1. Assumptions

The following assumptions shaped the implementation of this study. The rationale of the following assumptions was grounded in the extant literature, industry trends and the specific context of Zimbabwean commercial banks.

1.7.1.1. Digital Transformation is a key performance indicator in the commercial banking sector in Zimbabwe.

This assumption stems from the heightened interest in the subject area among academics. Recent studies have shown that DT can improve efficiency, reduce operational costs, and may lead to improved customer experience and all this impacts performance (Huang, 2021; Pham et al., 2022; Soesilo & Tampubolon, 2023). In addition, Industry trends seem to confirm that DT impacts performance as the banking industry continues to undergo significant changes, with many of them investing heavily in digital technologies to remain competitive (Sia et al., 2021).

1.7.1.2. IT Capability plays a mediating role in the association between DT and commercial bank performance in Zimbabwe.

This assumption applied to this study because the Digital Orchestra Framework seems to suggest that IT capability is key in improving how banks implement their DT, thus banks with strong IT capability are likely to improve the interaction between DT and commercial bank performance (Kasteli et al., 2022; Yang et al., 2023). Research has concluded that the effective use of digital technologies, effective IT skills, and IT governance positively impact how commercial banks' DT initiatives impact performance (George & George, 2023).

1.7.1.3. Survey respondents are knowledgeable and will provide relevant responses.

Bank employees are likely to have the most valuable insights into DT initiatives implemented by their banks, as they are highly involved in the implementation and use of digital technologies. Furthermore, bank employees will most likely provide informed responses given their understanding of the banking industry and its operations.

1.7.1.4. All banks involved will allow their employees to participate in the survey, and the Research Council of Zimbabwe will approve the study.

The study results will add value to the banks as they will have valuable insights into how DT impacts performance and also how IT capability influences this relationship. The Regulatory authorities and academia at large will also draw lessons from this study; thus, it was envisaged that such approvals would be granted. It was thus assumed that the study would find support from the banks and regulators, including the Zimbabwe Research Council.

1.7.2. Limitations

According to Ross and Zaidi (2019), study limitations constitute the inherent weaknesses that are seen in a study design, and these need to be acknowledged to ignite interest in further inquiry. Concerning this study, the following limitations were observed.

1.7.2.1. Sample Size Limitation.

Given that the study aimed to generalise the results, the sample used could be limited in size, thereby resulting in underrepresentation from some commercial banks in Zimbabwe. The study used the G*Power software to determine the minimum sample size, and this was triangulated with Kejcic and Morgan's (1971) table to arrive at 361 respondents. To ensure that the responses were not concentrated on one bank, the questionnaires were then distributed in proportion to this number.

1.7.2.2. Self-Reported Data.

The use of self-reported data from the survey may be subject to bias. To address this, the study adapted valid measures from previous studies. In addition, the collection of data from several respondents from the same institution improved the reliability of the data.

1.7.2.3. Contextual Factors.

The study may not fully account for other contextual factors such as economic conditions, regulatory environment and views from customers and other stakeholders. As a remedy, the study recommended these as areas for further study.

1.7.2.4. Methodological Limitations.

This study employed a quantitative approach, which, while appropriate for testing hypothesised relationships, does not capture the rich, contextual insights that qualitative methods such as interviews or focus groups could provide. This limitation was mitigated by grounding the survey instrument in previously validated scales from the literature, ensuring that the quantitative measures were robust and theoretically sound.

In addition, the stakeholder perspective was limited to commercial bank employees. While they are important in the provision of critical internal insights, the views of other key stakeholders such as customers, regulators and shareholders were not included. This could limit the holistic understanding of how DT influences the performance of commercial banks in Zimbabwe, considering the mediation of IT capability. That as it may, this study mitigated this by the application of robust statistical analysis to ensure the reliability of the employee data and has recommended the inclusion of other stakeholder perspectives as a key area for further studies in section 5.5.

1.7.3. Delimitations

In order to have a focused study, it is important to set out the study delimitations. These study boundaries define the scope and focus of the study, thus providing clarity on the areas that will and will not be covered by the inquiry (Ross & Zaidi, 2019). Primarily, these specify the population, geographical and data collection time frame parameters associated with the study. In terms of this study, the following parameters were considered.

1.7.3.1. Geographic Scope.

This study was limited in its geographic scope to commercial banks that operate in Zimbabwe. This was because of a paucity of studies that have considered the subject in the context of Zimbabwean commercial banks. Most of the current literature seems to have considered other industries, while that which has studied DT in commercial banks has focused on other areas (Chinakidzwa, 2020; Chindudzi et al., 2020; Hokonya, 2024). Most studies in the literature were done in Asian countries, Europe and the Middle East, thereby suggesting the need for widening the geographic scope (Shwedeh et al., 2020).

1.7.3.2. Population and Sample.

The population targeted by this study were commercial bank employees aged between 18 and 65 years. The study relied on a sample of 361 participants.

This is due to the reason that employees at least 18 years old are not vulnerable and do not need guardian consent; in addition, those above 65 have retired and therefore were not considered. Sampling was considered important due to time constraints that would make it difficult to carry out a census of the population. In addition, prior valid studies have applied representative samples, as was the case in this study (Alrawashedh & Shubita, 2024).

1.7.3.3. Time Frame.

The study was limited to the two years provided by the University. In that regard, the study was limited to January 2023 to December 2024.

1.7.3.4. Study Variables.

The focus variables for this study were DT, IT Capability, IT Innovation, Employee productivity and Commercial Bank Performance. These were selected after a thorough literature review, which indicated that these were connected, albeit with some gaps that were noted in the literature (Almustafa et al., 2023; Alshammari, 2023; Cappa et al., 2020; Khan et al., 2022; Kumar, 2024; Lahiri & Das, 2024; Mogoale et al., 2021; Panda & Rath, 2021)

1.7.3.5. Research Instruments.

A structured questionnaire was the only study instrument deployed to collect data. The scope of the questions was limited to the constructs of the study framework and avoided any political or sensitive questions. This was in line with the nature of the study, as well as support from the literature (Kircher, 2022; Ozcan et al., 2023).

1.7.3.6. Theoretical Framework.

The conceptual boundaries for this study were guided by three theories. These were the Dynamic Capabilities Theory, The Technology Acceptance Model and the Digital Orchestra Framework. These theories supported the links between the study variables as indicated earlier.

1.7.3.7. Methodology.

The study approach was quantitative in nature, and a survey was used to collect data. This was because this study was correlational and it sought to establish relationships between study variables, thus fulfilling the purpose of this study. The gaps identified in the problem statement also required this approach.

1.7.3.8. Analytical Techniques.

This quantitative study sought to establish the interaction between various study variables defined in the conceptual framework. In order to meet the pertinent study objective, it was essential that a robust analytical technique be deployed. To that end, this study employed the Structural Equation Modelling (SEM) technique to analyse the hypothesised relationships.

1.7.3.9. Scope of the Study.

This study was limited to commercial banks only and did not consider other financial service providers such as microfinance banks, developmental banks, agriculture financing banks and other financial institutions. This was in line with prior studies that focused on commercial banks, given their importance in the respective countries' economies (Soelistyoningrum et al., 2023)

1.7.3.10. Exclusion Criteria.

The study limited the participants to active Zimbabwean commercial bank employees of banks that were operating in Zimbabwe. Those employees working for branches outside the country were not surveyed. In addition, the surveyed employees were between 18 and 65 years old, in line with the legal age of maturity and retirement age in Zimbabwe, respectively. Minors and those with severe disabilities who could not make their own decisions were not considered for the study.

1.8. Structure of the Study

This dissertation is divided into five main chapters. Chapter 1 provided the impetus for this research by introducing the topic, providing background to the study, giving the problem and purpose statements, setting the study objectives, and establishing the study questions and hypotheses, as well as highlighting the significance of the study.

Chapter 2 evaluated and synthesised the extant literature surrounding DT, IT Innovation, employee productivity, IT capability, and commercial bank performance, as well as the mediating role of IT capability. Empirical studies were evaluated to draw on the prior study experience. Largely, this chapter synthesised, analysed, and evaluated the literature specific to this study.

Subsequently, Chapter 3 detailed the methodology, research design, and procedures applied to this inquiry. The study techniques, including the population, sample, sampling techniques, instruments applied in data collection, and how ethics were upheld, were covered in this section. In addition, this chapter considered the key concepts of reliability and validity. Limitations and delimitations specific to the study methodology and how they impacted the study were also considered in the third chapter.

Chapter 4 collected and analysed the data relating to the study. Guided by the problem statement, the methodology, and the research questions and hypotheses, this chapter presents the study results. Demographic statistics and descriptive statistics were applied. Such analyses as structural equation modelling (SEM) and critical factor analysis (CFA) were discussed in this chapter. Overall, the analysis given was linked to the study hypotheses and research questions.

The study terminates with Chapter 5, which summarises the study and gives conclusions as well as recommendations. It offered an interpretation and discussion of the results, linking them to the body of existing literature related to the topic under study. It discussed how the results conformed to both the literature review as well as the theoretical framework. The contribution to knowledge in the form of the study conclusions is also provided in this chapter, thereby bringing the study to a conclusive end.

1.9. Chapter Summary

Largely, this Chapter showed that the concept of DT has gained worldwide interest from both academics and practitioners (Masoud & Basahel, 2023). It established that several banks globally have embarked on DT journeys to sustain performance given dynamic customer needs and increased competition (Khams, 2022; Sia et al., 2021; Tardieu, 2020). The problem, however, is that there is no consensus on whether DT results in positive performance (Boufounou et al, 2022; Sia et al., 2021; Zuo et al., 2021), with some studies confirming, while others returning negative results (Kadur & Rajshekar, 2022; Reis & Melao, 2023; Tran et al., 2023).

Furthermore, the mediating role of IT capability in enhancing the impact of DT on commercial bank performance was not adequately considered in these studies. Regarding Zimbabwean commercial banks, their performance has been dented by structural challenges in the market, NPLs, and the aggression coming from MNOs and Fintechs, and this has seen their market share dwindle (Kaondera et al., 2023; Katuka et al., 2023). The need for this study resulted from gaps in the literature (Boufounou et al, 2024; Kadur & Rajshekar, 2022; Reis & Melao, 2023; Sia et al., 2021), methodological gaps (Hakizimana et al., 2023; Hokonya, 2024; Masinire et al., 2023) and contextual gaps resulting from studies being skewed toward Asian and European countries (Cappa et al., 2020; Goldfarb & Tucker, 2019).

The chapter outlined the study objectives, culminating in the significance of the study. To achieve the outlined objectives, the chapter determined that a quantitative research approach undergirded by a survey design was the best approach for this study. This lined up with prior studies (Huang, 2023; Kontic & Kontić, 2023; Scalcău, 2023). It highlighted how the study was significant by exploring both theoretical and practical significance. Theoretically, the chapter illuminated that this study would add to existing theory (Bican, 2020; Gökalp & Martinez, 2022;

Kaondera, 2023). Also, policymakers, bank managers, and regulators will be practically enriched by the study as they will be able to make enhanced decisions and strategies (Tran et al., 2022).

Guided by the study variables, the chapter established questions and hypotheses that funnelled the study. The next Chapter reviews the literature surrounding the study.

CHAPTER 2: LITERATURE REVIEW

2.1. Overview

The global banking sector is undergoing a significant makeover owing to rapid technological advancements, morphing customer needs, and increased competition from Fintechs and MNOs (Do et al., 2022; Lee and Shin, 2018). This has resulted in the performance of banks coming under intense pressure. As a result, DT has emerged as a key component in this change, and several banks globally have initiated DT journeys (Papathomas & Konteos, 2023) with a view to sustaining performance. Likewise, Zimbabwean commercial banks face increasing pressure to adapt and innovate to remain relevant and competitive. Consequently, their response has been to adopt DT, albeit at an excruciatingly slow pace (Kaondera et al., 2023).

On the global stage, the implementation of DT has returned inconsistent results as indicated by various studies (Diener & Špaček, 2021; Reis & Melao, 2023; Sia et al., 2021; Tran et al., 2023). Regionally, most of the DT efforts have been slow, although some successes have been recorded (Modiba et al., 2020). Specifically, the impact of DT on commercial bank performance in Zimbabwe seems poorly understood. Furthermore, the mediating role of IT capability in this relationship seems to be underexplored in the literature. Where studies have been done, most have been in different geographical contexts, that is, mainly in the developed world and Asian countries (Nahed et al., 2024; Zuo et al., 2021), suggesting the need for further inquiry.

Accordingly, the objective of this literature review is to provide a detailed overview of existing knowledge in the area of DT and commercial bank performance as mediated by IT capability. This is achieved through synthesising nascent research on the effect of DT on commercial banking performance. This section discusses literature on the mediating role of IT

capability in the relationship between DT and commercial bank performance, specifically the extent to which it enhances or hinders this association. The individual study variables will be discussed. In addition, the review will examine the current state of DT in the Zimbabwean commercial banking sector, discuss the key drivers and challenges of DT, and the impact on commercial bank performance.

Consequently, this chapter starts with the theoretical review of the inquiry. The theories underpinning the study will be discussed and contextualised. The ensuing theoretical framework will be presented, as well as the conceptual framework. After discussing the main themes of the study, this chapter develops the hypotheses that underpin the study. Specifically, it looks at the link between DT and employee productivity, DT and IT capability, and DT and IT innovation. Further, the individual relationships between IT innovation, IT capability, employee productivity, and commercial bank performance will be explored. By examining the body of literature on the interplay between these variables, the review aims to provide a better and more comprehensive detailing of the complex dynamics at play by exposing related gaps to point out any areas for future research.

The literature search strategy was underpinned by the consultation of numerous databases to extract the relevant literature for this study (Ebidor & Ikhide, 2024; Jedynak et al., 2021; Nadkarni & Prügl, 2020). The databases that were employed in this study were ProQuest, EBSCO, Science Direct, Emerald Insight, Google Scholar, Web of Science, Scopus, Research Gate, and Mendeley. The use of these databases is supported in recent studies as they enhance the credibility of a study (Osei et al., 2023; Pandey, 2024; Setiyo & Rochman, 2023; van Tonder et al., 2020). The search targeted mainly English articles, and the bulk of them were from the year 2019 onwards, except in unavoidable circumstances. Key phrases that were applied in the search include

“Digital Transformation”, “Digital Transformation and IT innovation”, “Digital Transformation and IT capability”, “Digital Transformation and employee productivity”, “Employee productivity and commercial bank performance”, “IT capability and commercial bank performance”, “IT innovation and commercial bank performance”, “Digital Transformation and Organisational Performance” and “Digital Transformation Framework”. The search was confined to peer-reviewed scholarly papers as well as credible research articles and conference papers.

2.2. Theoretical Review

A theoretical framework is a vital cog in the success of any study, as it cements the structure and helps illuminate the vision and basis of the study (Bunmi, 2022). Furthermore, it assists in marking the peripheral confines of the research pitch (Dash et al., 2023), thereby ensuring a focused study that allows generalizability (Mensah et al., 2020), which is one of this study’s aims. According to Kivunja (2018), it constitutes the study field’s expert-drawn theories used to provide structure to the research and help provide a "theoretical context, or foundation for the interpretation and analysis of data to gain the meaning contained thereof" (p. 46). Additionally, it has been seen to assist in the construction of a conceptual framework (Chukwuere, 2021) as well as lend support to the study theories. In order to arrive at a theoretical framework, it is necessary to carry out a theoretical review of the theories relevant to the current study.

This study is theoretically grounded in an integrated framework drawing on the Dynamic Capabilities Theory (DCT) as the primary explanatory lens, supported by the Technology Acceptance Model (TAM) and the Digital Orchestra Framework (DOF). The integration of these theories provides a coherent explanation of how digital transformation (DT) influences commercial bank performance in Zimbabwe through organisational, technological, and human-centred mechanisms.

Dynamic Capabilities Theory (DCT) serves as the core theory anchoring this study. DCT explains how organisations operating in turbulent environments develop, reconfigure, and deploy internal capabilities to achieve sustained performance (Teece et al., 1997; Teece, 2018). In the context of this study, DCT provides the theoretical justification for examining IT capability and IT innovation as strategic capabilities through which DT enhances commercial bank performance. Zimbabwean commercial banks operate in an environment characterised by economic volatility, regulatory pressure, and technological disruption; thus, DCT is particularly suited to explaining how DT enables banks to adapt and remain competitive. Accordingly, DCT underpins the hypothesised relationships between DT, IT capability, IT innovation, and commercial bank performance.

While DCT explains organisational-level capability development, it does not sufficiently account for individual-level behavioural responses to digital technologies. To address this limitation, the Technology Acceptance Model (TAM) is incorporated as a supporting theory to explain the role of employee productivity in the DT performance relationship. TAM posits that technology adoption and usage are driven by perceived usefulness and perceived ease of use (Davis, 1989). In this study, TAM provides the theoretical basis for hypothesising that DT positively influences employee productivity, which in turn affects overall commercial bank performance. By incorporating TAM, the study acknowledges that the success of DT initiatives depends not only on organisational capabilities but also on employees' acceptance and effective use of digital systems.

The Digital Orchestra Framework (DOF) further complements the framework by explaining how IT capability coordinates and aligns digital resources to produce performance outcomes. DOF conceptualises DT as an orchestrated process in which digital technologies,

organisational processes, and human capabilities are synchronised to create value (Khin & Ho, 2019). Within this study, DOF provides the theoretical rationale for the mediating role of IT capability in the relationship between DT and commercial bank performance. It explains how IT capability acts as the mechanism through which DT initiatives are translated into tangible performance gains.

Taken together, these theories form a coherent and integrated theoretical framework. DCT explains why DT enhances performance through capability development, TAM explains how employee productivity responds to DT, and DOF explains how IT capability mediates and orchestrates these relationships. This integrated framework underpins the development of the study hypotheses and informs the conceptual framework presented later in this chapter.

2.2.1. Dynamic Capabilities Theory (DCT)

The Dynamic Capabilities Theory argues that an organisation's ability to integrate, build and reconfigure internal and external resources enables it to sustain performance in rapidly changing environments (Teece, 2007). In this study, DCT provides the foundational logic linking digital transformation (DT) to commercial bank performance.

2.2.1.1. How DCT links to the study variables.

DCT explains how banks must reconfigure their technological, human and operational resources to benefit from DT. Without strong dynamic capabilities, DT may produce negative or insignificant performance outcomes, as shown in conflicting empirical results (Kadur & Rajshekar, 2022; Tran et al., 2023; Nguyen-Viet & Nguyen, 2023).

DCT positions IT capability as a dynamic capability enabling banks to adapt technology, build digital infrastructure and align IT resources with changing market needs. The theory explains

that commercial banks with sophisticated IT capability are able to sense, seize and develop digital trends through agile innovation (Warner & Wäger, 2019).

This study posits relationships between DT and IT capability, DT and IT innovation, and all these with commercial bank performance. Previous studies have used this theory to explain how organisations can develop and leverage dynamic capabilities to drive IT innovation, as well as explain how IT capability can be used as a dynamic capability to drive performance in the context of DT in commercial banks (Nousopoulou et al., 2022; Vial, 2019). Recent studies suggest that sensing, seizing, and reconfiguration capabilities allow banks to identify and exploit opportunities as well as reconfigure and re-channel resources, thereby aiding the achievement of the bank's strategic performance objectives (Abdurrahman et al., 2024; Rostika, 2023).

Banks with stronger dynamic capabilities more effectively convert digital technologies into performance gains (Kasteli et al., 2022; Barba-Sánchez et al., 2024). The DCT explains that organisations with robust IT capability are likely to gain a competitive advantage and thereby enhance their performance. This is because advanced IT capability improves cybersecurity, as well as being the catalyst for continuous organisational renewal (Krechovská & Procházková, 2022).

The DCT has been applied to support the relationship between DT and Innovation. Warner and Wäger (2019) argue that dynamic capabilities are innovation-based; therefore, they can impact the innovation capabilities of commercial banks. In the same vein, Bawdy et al. (2024) posit that DT influences the ability of banks to innovate. The dynamic capabilities theory is quite instructive in this study because studies such as Marx et al. (2021) have shown that these enable firms to sense and seize opportunities that are presented by digital technologies. This is possible through leveraging the same to change bank strategies and processes, as well as constant innovation and evolution in the digital era.

More studies have used this theory to support the mediating role that IT capability plays in the relationship between DT and commercial bank performance (Rostika, 2023). This is so, according to Teece et al. (1997), because dynamic capabilities allow firms to scale up or down at speeds and costs that were not previously possible to achieve, improve services, and enhance the efficiency of the transformed commercial bank. Recent studies indicate that dynamic capabilities allow commercial banks to adapt rapidly to technological changes as well as the ever-evolving market conditions, thus enhancing their DT capabilities (Rostika, 2023).

IT capability, as a subset of dynamic capabilities, has been seen to mediate the association between DT and bank performance by facilitating the integration of digital technologies within the commercial bank's operations. Further, Cheng et al. (2023) posit that this mediation aids innovation and business model transformation, thus enhancing performance and the achievement of a competitive advantage. Consequently, commercial banks in Zimbabwe will need to leverage dynamic capabilities to drive IT innovation.

2.2.1.2. Critical evaluation.

While DCT is widely used to explain digital competitiveness, it has been criticised for being overly abstract and difficult to operationalise in empirical studies. Scholars have indicated that words such as “sensing”, “seizing” and “reconfigure” may be difficult to convert into measurable and trainable skills. Furthermore, there is divergence in what constitutes dynamic capabilities, with different authors citing different capabilities (Braun & Sydow, 2019; Warner & Wäger, 2019).

Likewise, how these capabilities are measured has been a bone of contention due to the lack of a standard measuring approach (Kump et al., 2019). Nonetheless, van Tonder (2020) maintains that there exists a need to carry out further studies using the dynamic capability theory

to study DT and its impact on organisational performance, especially considering the mediation role played by IT capability. In developing economies like Zimbabwe, resource constraints may weaken dynamic capabilities, making DT benefits less automatic. This justifies empirically testing whether IT capability mediates DT–Commercial Bank Performance relationships in such contexts. This is in line with several similar prior and valid studies (Kowalski et al., 2024; Wu & Cheng, 2024; Zhang et al., 2022).

2.2.2. Technology Acceptance Model (TAM)

The Technology Acceptance Model (Davis, 1989) explains user acceptance of technology based on perceived usefulness and perceived ease of use. The TAM is a pivotal framework for understanding the interplay between DT and employee productivity as well as the impact of employee productivity on the overall performance of commercial banks (Zain & Christian, 2023).

2.2.2.1. How TAM links to the study variables.

TAM provides the theoretical basis for expecting that employees who perceive digital tools as useful and easy to use are more likely to adopt them, leading to improved employee productivity. DT provides employees with new technologies and collaboration platforms. TAM posits that the subsequent impact of DT on employee productivity is influenced by acceptance of the associated technologies (Sharma & Sharma, 2023).

Prior studies suggest that the adoption and use of technology, which is at the centre of DT, is capable of instituting immediate and future benefits such as improved individual and corporate performance (Marikyan & Papagiannidis, 2023). The use of TAM in this study was apt because this study theorises that DT impacts employee productivity, which in turn impacts commercial bank performance. This chimed with İslatince (2023), who used TAM to evaluate the attitudes of Turkish bank employees towards banking technology. It was found that TAM plays an important

role in aiding the comprehension of how bank employees perceive and accept information technology and their acceptance of DT. The study discovered that employees' acceptance of technology directly influenced their productivity, which in turn positively impacted overall bank performance. Similarly, Vuković et al. (2019) conclude that TAM is a useful framework for explaining the interplay between DT, employee productivity, and the overall performance of banks.

Employee acceptance of digital tools influences their willingness to participate in innovation and process improvement. According to Kraus et al. (2022), TAM helps to explain the readiness of an organisation to absorb and continuously adopt innovative IT. According to Taherdoost (2023), if commercial bank employees and developers who are supposed to apply digital tools perceive the new platforms as cumbersome or not fit for purpose, they will resist using them, thereby negatively impacting IT innovation.

2.2.2.2. Critical evaluation.

Although TAM successfully predicts individual-level technology adoption, it has been criticised for being limited to user perceptions and not addressing organisational or strategic readiness. However, combining TAM with DCT strengthens the framework by linking micro-level adoption with macro-level organisational capabilities. Recent scholars (Almaiah et al., 2022) argue that TAM on its own may be an insufficient lens; however, it needs to be integrated with other models, hence the combined use of this framework and the DCT, as well as the DOF. While TAM has been criticised for being irrelevant as an explanatory theory when it comes to innovation, it has been regarded as a powerful lens in explaining the impact of IT innovation on commercial bank performance. This is so because innovations need to be accepted by the users for them to positively impact performance.

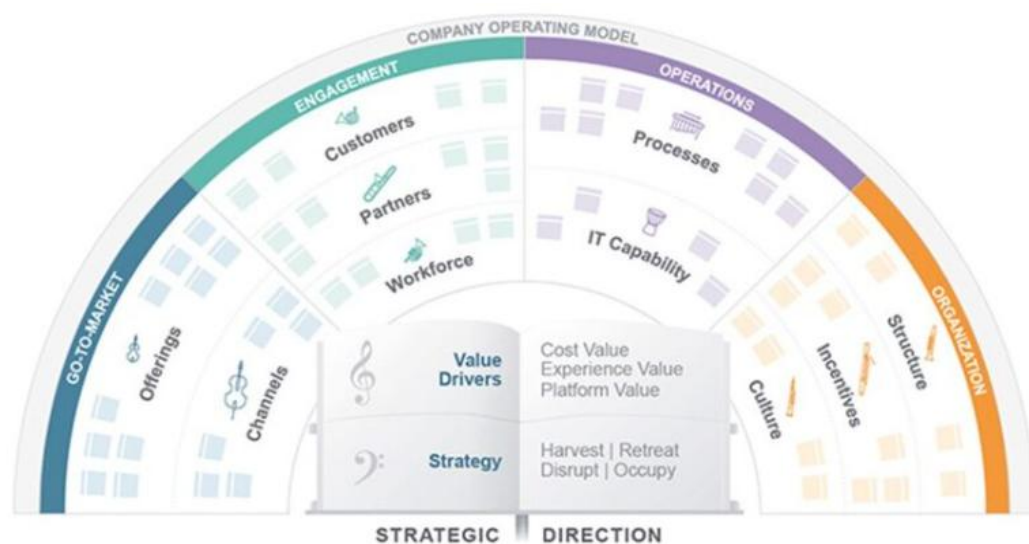
2.2.3. Digital Orchestra Framework (DOF)

The Digital Orchestra Framework (Sia et al., 2021) conceptualises digital transformation as a coordinated integration of digital capabilities similar to instruments in an orchestra working harmoniously. To enhance understanding of how IT capability functions within an integrated digital ecosystem, this study draws on the Digital Orchestra Framework (DOF) developed by Sia et al. (2021). The DOF conceptualises digital transformation as a coordinated and synchronised effort across multiple organisational domains, including customer engagement, operations, organisational structures, IT capability and go-to-market activities. Similar to an orchestra, where different instruments must work in harmony to produce a coherent performance, the framework emphasises that digital transformation succeeds only when digital initiatives, resources, leadership, culture and processes are aligned and managed cohesively.

The DOF is particularly relevant to this study because it illustrates how IT capability acts as a central coordinating mechanism that enables an organisation to integrate digital technologies effectively and achieve performance outcomes. In the context of Zimbabwean commercial banks, where digital maturity levels vary and resources are constrained, the framework provides a clear theoretical lens for understanding why some digital transformation initiatives succeed while others fail. Figure 1 below depicts the Digital Orchestra Framework, showing its major components and the central positioning of IT capability within a holistic digital transformation strategy.

Figure 1

The Study Conceptual Framework



Note. This model was produced by Wade, et al. (2017), showing how organizations achieve DT by concentrating on four sections of go-to-market, engagement, operations, and organisation, and deciding what value they need to achieve. From “Orchestrating Digital Business Transformation. Global Center for Digital Business,” by M. Wade, A. Noronha, J. Macaulay, & J. Barbier, 2017, GCDBM.

2.2.3.1. How DOF links to study variables.

DOF directly informs the study’s mediating mechanism. It argues that DT success depends on the coordinated orchestration of IT infrastructure, digital skills, leadership, culture and processes.

The DOF is a useful analogy and offers a comprehensive lens for understanding the mediation role played by IT capability on the relationship between DT and commercial bank performance. This is because it emphasises the orchestration of IT capability to enhance commercial bank performance. Zimbabwean commercial banks can therefore use IT capability to

harmonise different DT initiatives to achieve better performance (Abdurrahman et al., 2024). This is achieved when banks detect and respond to opportunities provided by technology to lower costs, improve processes, and provide enhanced products to customers (Li et al., 2023).

Similarly, Khin and Ho (2019) argue that strong IT capability enables the seamless integration and coordination of the orchestrated resources, thus impacting the relationship between DT and commercial bank performance. By insisting that IT capability plays the conductor role, the DOF helps clarify its efficacy in generating the output variable, that is, commercial bank performance. Some studies indicate that IT capability enhances operational efficiency, enables innovation, improves customer experience, and supports decision-making, thus assisting DT to improve bank performance (Chen et al., 2024; Thuy, 2020; Zhu & Jin, 2023).

2.2.3.2. Critical evaluation.

While DOF offers a strong conceptualisation of integrated digital capabilities, its limitation lies in the fact that it has been applied mainly in advanced digital economies like Singapore. Testing DOF in Zimbabwe, therefore, contributes context-specific evidence to global DT literature.

In essence, the Dynamic Capabilities Theory (DCT), the Technology Acceptance Model (TAM), and the Digital Orchestra Framework (DOF) are the key theories supporting this study. This is because the prior studies have supported the use of the DCT to support the relationship between DT and IT capability, DT and IT innovation, and commercial bank performance, as well as the mediating role of IT capability (Kowalski et al., 2024; Nousopoulou et al., 2022; Rostika, 2023; Vial, 2019; Warner & Wäger, 2019; Wu & Cheng, 2024; Zhang et al., 2022).

Similarly, the use of the TAM in this study stems from its support for the hypothesised relationships between DT and employee productivity as well as employee productivity and the

performance of commercial banks (İslatince, 2023; Marikyan & Papagiannidis, 2023; Shanti et al., 2023; Vuković et al., 2019; Zain & Christian, 2023). As prior studies have indicated, the DOF supports the mediating role played by IT capability on the relationship between DT and commercial bank performance (Chen et al., 2024; Khin & Ho, 2019; Thuy, 2020; Zhu & Jin, 2023). The convergence of the theories supporting the relationships in this study can be seen in the table presented below. Consequently, the theoretical framework for this study is framed by the given theories as they are relevant to the current study.

Table 1

Integrated Theoretical Logic for this Study

Theory	Primary Contribution	Linked Variables
DCT	Explains organisational ability to convert DT into performance	DT → IT Capability → Performance
TAM	Explains employee adoption and behavioural responses to DT	DT → Employee productivity; DT → IT Innovation
DOF	Explains the orchestration of IT capability as a mediator	IT Capability → Performance; DT → IT Capability

The integration of the Technology Acceptance Model (TAM), the Dynamic Capabilities Theory (DCT) and the Digital Orchestra Framework (DOF) provides a comprehensive and multi-level theoretical foundation for this study. TAM explains how employees perceive, adopt and utilise digital tools, making it essential for understanding the behavioural mechanisms through which digital transformation influences employee productivity and IT innovation. DCT, on the other hand, offers a strategic perspective by clarifying how organisations reconfigure and deploy resources, particularly technological and human capabilities, to derive competitive advantage, thereby illuminating the link between digital transformation and organisational performance.

DOF complements both by demonstrating how digital resources, leadership, culture, processes and IT capability must be orchestrated cohesively for digital transformation to yield meaningful performance gains. When combined, these theories capture the full pathway through which digital transformation operates from employee-level adoption to organisational capability development, to coordinated digital execution. Together, they form a robust theoretical lens for explaining how digital transformation affects performance across employee, innovation, capability and organisational dimensions within Zimbabwean commercial banks.

2.3. The Conceptual Framework

This section develops the conceptual framework underpinning the study. It focuses on theorising the relationships among digital transformation, employee productivity, IT capability, IT innovation, and commercial bank performance. Drawing on the Dynamic Capabilities Theory, Technology Acceptance Model, and Digital Orchestra Framework, the section explains why and how these constructs are expected to be related, without engaging in extensive discussion of empirical findings.

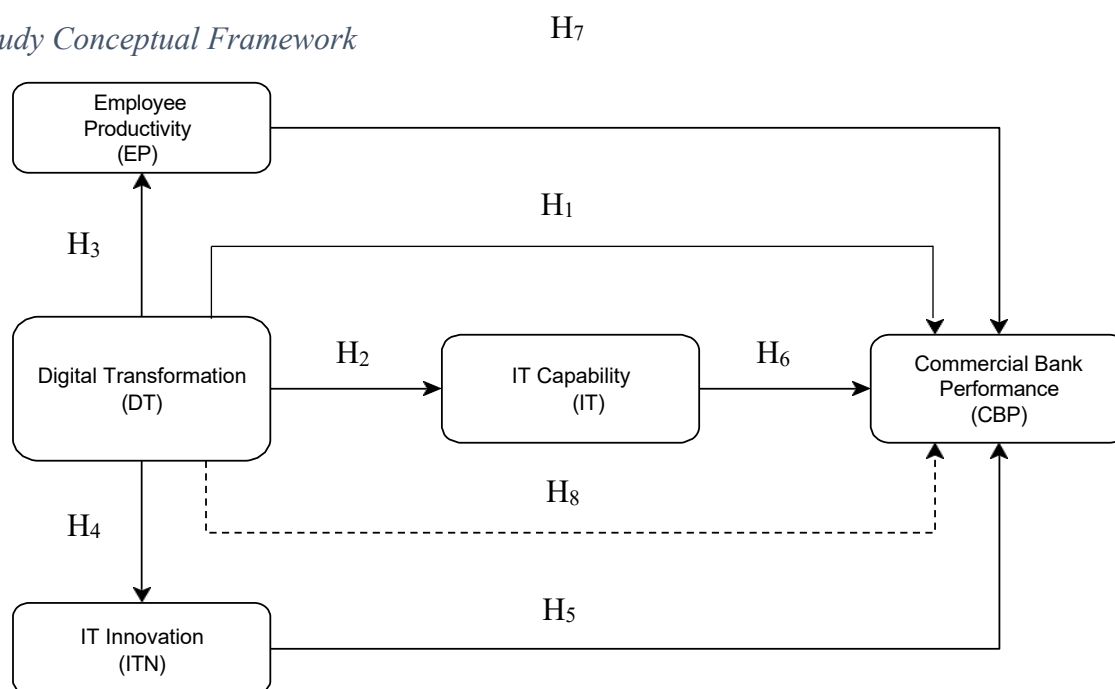
Based on the reviewed theories and empirical evidence, the conceptual framework proposes that digital transformation (DT) influences commercial bank performance both directly and indirectly. The indirect effect operates through IT capability, which mediates the relationship by enabling banks to effectively deploy and leverage digital technologies. Additionally, DT is expected to enhance employee productivity and IT innovation, both of which are theorised to contribute to improved commercial bank performance. These pathways align with TAM (employee adoption), DCT (resource reconfiguration), and DOF (orchestration of IT capabilities).

Thus, the conceptual model proposes a set of interrelated pathways through which digital transformation is expected to influence the performance of commercial banks. First, the framework

incorporates a mediated pathway, whereby digital transformation enhances IT capability, which in turn improves bank performance. Second, digital transformation is theorised to strengthen employee productivity, which subsequently contributes to improved organisational outcomes. Third, digital transformation is expected to stimulate IT innovation, which also plays a role in enhancing bank performance. In addition to these indirect effects, the model acknowledges a direct pathway from digital transformation to bank performance, recognising that some performance gains may occur independently of mediating factors. Overall, this integrated framework positions IT capability as the central mechanism through which digital transformation yields varying performance outcomes across Zimbabwean commercial banks, while also accounting for the complementary roles of employee productivity and IT innovation.

Figure 2

The Study Conceptual Framework



This conceptual framework is sufficient for this study as it addresses the study objectives.

The main aim of this study is to investigate the impact of DT on the performance of commercial

banks, considering the mediating role of IT capability. In each relationship, the arrow is pointing toward the dependent variable. The bold arrows show the relationships between the predictor variables and the response variables, while the dashed line shows the perceived mediating role of IT capability in the relationship between DT and commercial bank performance. As indicated in Table 2 below, the study theories discussed earlier support this conceptual framework, thus making it a perfect fit for this study.

Table 2

Construct Relationships and Supporting Theories

Construct	Hypothesis	Relationship Affected	Supporting Authors for the Relationship	Supporting Theories
DT	H1	DT → CBP	Do et al. (2022); Cappa et al., (2020); Chen et al., (2021); Qi & Xiao, (2020); Qiu et al., 2018); Wang, (2023)	TAM (Davis, 1989), DCT (Teece et al., 1997)
DT	H2	DT → ITC	Hamida, (2018); Madanayake and Yapa, (2024); Makovoz & Sergii Lysenko, (2024); Sia et al., (2021)	DCT (Teece et al., 1997)
DT	H3	DT → EP	Adhikari et al., (2022); Almustafa et al., (2023); Indrasari & Pamuji, (2023); Gun et al., (2024); Ly, (2024); Widodo et al., (2024)	TAM (Davis, 1989)
DT	H4	DT → ITN	Alrawashedh & Shubita, (2024); Alshammari, (2023)	DCT (Teece et al., 1997)
ITN	H5	ITN → CBP	Bakri et al., (2024); Huang & Yang, (2019); Lahiri, (2022); Lahiri & Das, (2024); Midhunde, et al., (2023); Vedapradha, & Hariharan, (2021); Yang et al., (2021)	DCT (Teece et al., 1997)
ITC	H6	ITC → CBP	Bharadwaj (2000); Erkmen et al. (2020); Mogoale et al. (2021); Nwankpa & Roumani (2016)	DCT (Teece et al., 1997)
EP	H7	EP → CBP	Khan et al., (2022); Kumaran et al., (2023); Rahaman et al., 2023; Shi et al. (2024)	TAM (Davis, 1989)
ITC	H8	DT→ITC→CBP	Panda & Rath (2021); Sia et al. (2021); Zuo et al. (2021); Shanti et al. (2023)	DCT (Teece et al., 1997), DOF Wade et al. (2017)

Note: Author (2025)

2.4. Key Study Variables

This section discusses the key study variables, and these include Digital Transformation, IT Capability, Employee Productivity, IT Innovation and Commercial Bank Performance. These will set the tone for discussing the key study themes as determined by the research hypotheses.

2.4.1. What is Digital Transformation?

To gather a better understanding of what DT entails, it is important to consider its interconnected components. According to Saarikko et al. (2020), arriving at DT entails the achievement of the interconnected concepts of digitisation and digitalisation. They show that digitisation is part of digitalisation, and the latter is embodied in DT. Consequently, it is important to consider these terms separately to avoid confusing them, as they are often used interchangeably (Gong & Ribiere, 2020; Mergel et al., 2019), blurring their distinctiveness and thus leading to their misinterpretation (Ali, 2022).

2.4.1.1. Digitisation.

A scan of the literature often reveals the wrongful use of digitisation, digitalisation, and DT, as they are often used interchangeably or to mean the same thing (Nwaiwu, 2018). For example, Udovita (2020) points out that digitalisation and DT are the same thing. This is not surprising as these concepts are closely related and connected (Saarikko et al., 2020). However, exposing their differences is key to understanding DT (Modiba et al., 2020).

Digitisation has been defined as converting analogue information by coding it so that the same may be computerised (Schallmo et al., 2018). In other words, it is simply changing the analogue form of information into the digital form (Nwaiwu, 2018). An example of digitisation is scanning a report and sending it by email. Digitisation has been seen as the first step toward

effective DT as it forms its base (Verhoef et al., 2021). Pramanik et al. (2019) believe business process, product, and service digitisation enhances DT by allowing disruptive players to offer better stakeholder solutions. Hokkanen et al. (2021) argue that digitisation aids the creation of innovative models by businesses, making it a key component for digitally transforming a business. In essence, it appears in the literature that digitisation precedes both digitalisation and DT. Zimbabwean commercial banks seem to have achieved significant digitisation by automating their internal processes (Makota, 2023; Masinire et al., 2023; Wadesango & Magaya, 2020).

2.4.1.2. Digitalisation.

While digitisation is concerned with changing manual to digital (Mahmood et al., 2019), digitalisation has a wider focus as it refers to the alteration of current business models or processes by leveraging digital technologies and/or information technology (IT) (Aras & Büyüközkan, 2023). Gartner (2020, as read in Modiba et al., 2020) describes digitalisation as the process of altering business models in a way that enhances revenue and value by employing digital technologies. Lisa et al. (2020) illuminate that digitalisation is when organisations improve their operations, products, and models by using digital devices.

Alternatively, it can be considered the process of moving the entire business to one that is digital. It can thus be seen to differ from digitisation in that it goes beyond simply converting things from analogue to digital but focuses on how the entire business is delivered, thus prompting Saarikko et al. (2020) to claim that digitalisation embodies digitisation. Digitalisation may thus be viewed as an antecedent of DT as it allows the "creation of powerful digital affordances that may fundamentally alter the organisation of economic activity by supporting radical business model innovation" (Autio et al., 2018, p. 76).

The state of digitalisation in Zimbabwean commercial banks is not clear, as banks seem to be at various stages of digitalisation. Kunikova (2021) observes that Zimbabwean banks possess a strong digitalised backbone, given that the bulk of their transactions are now conducted digitally. Furthermore, Wadesango and Magaya (2020) indicate that the digitalisation journey for Zimbabwean banks is still ongoing, as indicated by the adoption of digital banking, online banking, mobile banking, and several other reliable and convenient digital services. Given the importance of DT to banks, it is, however, striking that not many papers have tackled this in the context of Zimbabwean commercial banks.

2.4.1.3. Digital Transformation.

A fundamental difference exists between digitisation, digitalisation, and DT. The use of the word "change" when it relates to digitisation and digitalisation, while DT uses the word "transformation," is not inadvertent. Safruddin et al. (2014) illustrated this when they remarked that change is when a snake sheds its skin, while transformation is akin to a caterpillar turning into a butterfly. While digitisation and digitalisation (a snake shedding its skin) result in some improvements, DT (a caterpillar turning into a butterfly) brings in some seismic transformation throughout the organisation that focuses on a holistic business reimagining to improve value to stakeholders (Udovita, 2020). The difference between digitisation, digitalisation, and DT is illustrated in Unruh and Kiron (2017), as shown in Figure 3 below.

Figure 3*Understanding Digital Transformation*

Note. This model was produced by Unruh and Kiron in 2017 to summarise the meaning of digitisation, digitalisation, and DT and show that they are sequential. From “Digital Transformation on Purpose,” by G. Unruh and D. Kiron, 2017, MIT Sloan Management Review.

Despite several attempts to define the concept of DT, there is no consensus among scholars regarding what it is (Gong & Ribiere, 2020; Papatomas & Konteos, 2023). For example, a literature review study by Vial (2019) returned twenty-three different definitions of DT. Similarly, Gong and Ribiere (2020), in an attempt to synthesise the DT definitions into a common one, reviewed twenty-one unique definitions. This is hardly surprising given the multifaceted, multidisciplinary, and complex nature of DT. This has led to many authors arguing that the meaning of DT is contextual and can be determined by the field of application.

That as it may, Szafir (2023) defined DT as the application of new digital technologies to bring radical improvements to the organisation. Such new technologies may include machine learning, big data analytics, and artificial intelligence, among others. Their impact may be the realisation of enhanced customer experiences, cost reduction, streamlined processes, and the

formation of new business models. Given the wide reach of DT, some authors (Reis et al., 2018; Schallmo et al., 2018) have illuminated that DT may be defined by three distinct classes. First, it is defined in an organisational context, which considers the conception of new business models or processes. Secondly, the DT definition needs to consider technological aspects, and this touches on digital technologies, embedded devices, social media, and analytics, among others. Thirdly, the DT definition is categorised by social class, where all aspects that influence humanity are considered. Consequently, Reis et al. summarised the DT definition "as applying new digital technologies to permit significant enhancements in a business in a manner that impacts all facets of clients' lives" (p. 418). According to Seyedghorban et al. (2020), DT goes beyond changing manual to digital and merely the application of digital technologies, but rather allows the organisation to craft value for their clientele or enables the customers to generate value by themselves. Lee and Lee (2020) aver that DT is wide in its impact as it allows customers to participate in the organisation's operational process, thus allowing the achievement of common objectives.

Gong and Ribiere (2020) frown at many of these definitions as they allege that they lack parsimony, are verbose, and, in addition, contain many observable blemishes, while some have conflation problems. In that regard, they came up with a unified DT definition, which sees DT as "a fundamental change process, enabled by the innovative use of digital technologies accompanied by the strategic leverage of key resources and capabilities, aiming to radically improve an entity and redefine its value proposition for its stakeholders" (p. 12).

Resultantly, this study will contextualise DT in commercial banking as the exploitation of digital technologies by commercial banks to build new digital banking models, achieve automated processes, improve stakeholder experience, and develop innovative digital products that result in

financial inclusion, better performance, and operational efficiency (Gong & Ribiere, 2020; Khams, 2022). This is because, considering these different perspectives collectively, it seems they do underscore the fact that DT goes beyond the mere adoption of new technologies. Instead, it appears DT embraces a holistic transformation that touches on technology, new methodologies, shifts in organisational strategy, and impact on organisational culture, all to achieve expected benefits. Overall, DT can be seen in the context of commercial banks as the application of recent and emerging technologies to effect radical improvement in a commercial bank, and this multifaceted concept encompasses technological and cultural changes in commercial banks.

2.4.1.4. Successful DT.

Successful DT is one whereby the performance goals of an organisation are improved by DT. Amazon achieved DT success by improving delivery times and automating supply chains using robots, which resulted in better customer satisfaction and hence better performance (Trenerry et al., 2021). According to McKinsey & Company (2021), the success of DT is measured by three indicators: value creation, team health, and progress in change management. Value creation touches on metrics that improve the financial health of the organisation. Team health measures how well the organisation's teams are adopting modern approaches such as agile, while change management progress entails how the organisation is progressing in developing new capabilities.

On the other hand, in their examination of successful DT, some scholars agree that such is driven by customer-centricity. This prompts Chen and Huang (2019) to argue that commercial banks need to prioritise customer needs and preferences when designing and implementing digital solutions. This approach ensures that digital transformation efforts align with customer expectations, leading to enhanced customer experiences and increased customer satisfaction.

Successful DT is thus seen in how satisfied bank customers and other stakeholders are after carrying out the DT exercise. Furthermore, Cheng et al. (2023) view a successful DT as one that results in the bank gaining a sustained competitive advantage. For example, DBS Bank was successful in implementing DT, as evidenced by its sustained competitive advantage (Sia et al., 2021).

Overall, academics and practitioners intersect in seeing successful DT as involving improving organisational value, having functional teams, and progressive change management (McKinsey & Company, 2021), gaining market share through customer satisfaction (Chen & Huang, 2019), and achieving sustained competitive advantage (Sia et al., 2021). In the context of commercial banks, a successful DT must positively impact performance by considering the variables identified by McKinsey & Company as well as Sia et al.

While studies have confirmed what successful DT entails (Chen & Huang, 2019; Trenerry et al., 2021), it remains unclear how IT capability has impacted such success. This seems to result from the fact that many such studies skirted investigating its influence on the said relationship (Boufounou et al., 2024; Kaondera et al., 2023; Kadur & Rajshekar, 2022; Sia et al., 2021). This, therefore, suggests that further inquiries are needed to enhance the evaluation of the mediating role that IT capability plays in this relationship. Indeed, what drives organisations to embark on DT journeys has come to be an area of interest in literature.

2.4.1.5. Determining DT Driving Factors.

DT driving factors are defined as a collection of both external and internal factors that trigger organisations to adopt DT (Osmundsen et al., 2018). These provide an answer as to why organisations need to adopt DT. In other words, these are the push and pull factors that push or pull organisations to implement DT. Several studies have identified a plethora of pull and push

factors for organisations, as well as commercial banks in particular, to implement DT (Verhoef et al., 2021; Wade et al., 2019). An exposition of these factors will help illuminate why DT and organisational performance seem to be attracting significant attention from practitioners and academics alike (Masoud & Basahel, 2023; Shashikala, 2019; Sia et al., 2021), and this study included.

The rise of the digital age has ushered in unique threats that have pushed banks to seek refuge through digital transformation (Wade et al., 2019). This chimes with Salume et al. (2022), who identify “the so-called SMACIT3, that is, social, mobile, analytics, as well as the Internet of Things (IoT)” (p. 3) as having jolted organisations into DT journeys owing to the vast opportunities and threats they present. They identify Facebook and Google, which have provided threats to traditional banks, prompting them to institute their own DT programs to survive. In agreement are Verhoef et al. (2021), who posit that the need for DT is spurred by the presence of big data, artificial intelligence, and many other emergent digital technologies. Given that these technologies are available to commercial banks, they therefore push commercial banks to implement DT.

Globalisation has meant that competition is not necessarily localised, with customers being able to open bank accounts across national borders. In the USA, the top five companies by value listed on S&P were hardly digital in the past decade, but due to changing competition dynamics ushered in by digital technologies, they are all now digital after implementing DT to counter global competition (Verhoef et al., 2021). Ajigini and Chinamasa (2023) disagree with this notion, as they intimate that the factors driving DT depend on geographical location. For example, Diener and Spacek (2021) cite South African banks that are yet to fully digitise as they encounter both operational and strategic hurdles.

Banks in Zimbabwe and South Africa have been pushed to implement DT by the advent of mobile network operators (MNOs) and fintechs, whose disruptive innovations have seen them take the market away from traditional banks (Jihane & Aziz, 2022; Verhoef et al., 2021). Nonetheless, other authors view the need for DT as driven by the need to “meet stakeholder expectations, including compliance, simplify processes, innovate, generate benefits, and prepare for risks and competitions while improving business models” (Pramanik et al., 2019, p. 323). Some authors (Haffke et al., 2016) recognise that regulatory requirements have played a part in pushing organisations into adopting DT.

While numerous reasons have been cited as having accelerated DT, several authors agree that the need to satisfy changing customer needs has been at the epicentre of its implementation by commercial banks (Tan et al., 2021; Witschel et al., 2019). This is because customers are now demanding more digitalised products and services (Bauer et al., 2018), thereby requiring that banks focus more on meeting customer needs. Further, the need to maintain a sustained competitive advantage has been identified as key in pushing banks to implement DT (Diener & Špaček, 2021; Pramanik et al., 2019). An example is the implementation of electronic banking by banks to sustain competitive advantage (Kraus et al., 2021).

In essence, the literature seems to suggest that organisations have been forced to implement DT, and these push factors have been identified as competition, dynamic customer needs, and regulatory requirements (Hashem, 2020; Jihane & Aziz, 2022; Pramanik et al., 2019; Verhoef et al., 2021; Xie & Wang, 2023). Similarly, the same institutions have been attracted to implement DT due to several pull factors such as enhanced performance, improved market share, enhanced customer satisfaction, and attaining competitive advantage (Diener & Špaček, 2021; Kraus et al., 2021; Pramanik et al., 2019). While there has been immense pressure on commercial banks to

implement DT to survive and attain sustained competitiveness (Diener & Špaček), its success is seldom guaranteed, so it is essential to consider what factors determine the success of DT.

2.4.1.6. Determining DT Success Factors.

The ingredients that are critical to the successful implementation of DT are referred to as DT success factors (Osmundsen et al., 2018). The discussion of DT success factors is critical, given that they help us to better quantify the effects of DT on commercial bank performance. While it has generally been agreed that DT is not easy to implement (Cheng et al., 2023; Morakanyane et al., 2020; Papathomas & Konteos, 2022), there has not been consistency in the extent to which DT initiatives succeed or fail. For example, Kane et al. (2017) reveal a 20% success rate, while Tabrizi et al. (2019) conclude that only 30% of DT initiatives succeed. As Morakanyane et al. have noted, such high failure rates have fanned curiosity among scholars to investigate those things that successful organisations are doing to achieve their DT goals. Several authors (Aras & Büyüközkan, 2023; Morakanyane et al., 2020; Osmundsen et al., 2018) have studied the factors that are critical in ensuring DT success.

Through a qualitative inquiry, Morakanyane et al. (2020) identified seven main success factors as well as twenty-three minor factors, and they argue that such factors are key in ensuring a DT journey that will result in the achievement of success. In their view, digital culture, vision, digital drivers, digital triggers, establishing a digital organisation, determining transformed areas, and determining or defining the expected impacts are the key DT success factors. Several studies (Nguyen, 2020; Tuukkanen et al., 2022; Verhoef et al., 2021) have agreed that culture is an important ingredient for DT success. According to Haffke et al. (2017), successful DT is undergirded by a culture that is supportive of both business and IT initiatives. Scholars argue that

organisations that will see their DT initiatives succeed need to enforce a culture that promotes agility, collaboration, experimentation, and risk-taking (Henfridsson et al., 2018; Qureshi et al., 2020). However, what is missing in these studies is how IT capability mediates the relationship between DT and performance, a gap this study intends to address. Some key components of culture have been identified in the literature. These components need to be considered if banks are to succeed with their DT journeys, and these are continuous learning, risk appetite, and change management (Lafioune et al., 2023; Mugge, 2020; Mundayan, 2023; Nguyen, 2020; Teichert et al., 2019; Zhang & Hon, 2020).

Banks that foster a culture of continuous learning and improvement are more likely to adapt to the evolving digital landscape (Seevaratnam et al., 2023; Teichert et al., 2019). This is because learning from both successes and failures is essential for sustained success. Continuous learning and improvement are fundamental drivers of alignment between the existing organisational culture and the strategic goals of DT (Tuukkanen et al., 2022). Cultural agility is fostered through continuous learning, encouraging employees to adapt to new technologies and processes. This agility aligns with the dynamic nature of digital transformation, as employees can quickly acquire new skills and apply them to meet strategic goals (Leso et al., 2023).

Continuous learning encourages an innovation culture, fuelling innovation, which aligns with the strategic goals of digital transformation. Employees who continuously learn are more likely to support these changes (Latinovic & Chatterjee, 2022). Customer-centricity is also essential, as continuous learning helps employees understand customer needs and expectations, empathise with customers, and provide tailored solutions (Zhang & Hon, 2020). According to Alenezi (2021), risk management is also crucial, as employees who are knowledgeable about risks

and mitigation strategies can help the organisation navigate potential pitfalls during digital transformation. Data-driven decision-making is a key component of digital transformation, and a culture of continuous learning ensures that employees can leverage data to drive strategic objectives (García-Peñalvo, 2021). This study seeks to examine the influence of employee productivity on the performance of commercial banks. A bank that continually upskills its workforce through training and encourages personal improvement is likely to accrue improved performance (Ndlovu & Dube, 2021).

DT is a strategic process that requires organisations to take risks and embrace uncertainty. The risk appetite of an organisation significantly influences its alignment with these objectives (Mundayan, 2023). A culture that encourages experimentation, learning from failures, and tolerance for calculated risks is more likely to foster innovation and the successful implementation of digital initiatives. Conversely, a risk-averse culture may stifle creativity and hinder the adoption of new technologies (Von Solms & Langerman, 2022). A high-risk appetite can foster a culture of innovation, as employees and leadership are more likely to experiment with new digital technologies, processes, and business models (Solberg et al., 2020). This is crucial for organisations to stay competitive and meet customer expectations. Agility and adaptability are also essential traits of a high-risk appetite. Employees willing to take risks are more likely to embrace change and adapt to new technologies and ways of working (Lafioune et al., 2023).

A risk-tolerant culture can be more customer-centric, as organisations willing to take risks to meet customer needs are more likely to invest in digital initiatives that enhance the customer experience (Cichosz, 2020). This aligns well with the strategic goal of discovering what works best in the digital landscape.

Informed decision-making is crucial in digital transformation, as organisations must balance the pursuit of opportunities with potential risks and challenges. Effective communication about risk appetite promotes transparency within the organisation, ensuring that employees understand the boundaries within which they can operate (Eory, 2021).

A well-defined risk appetite allows for better risk mitigation, as employees can take appropriate measures to minimise potential negative outcomes (Jones et al., 2021). A culture that aligns with the organisation's risk appetite actively contributes to risk management efforts, ultimately contributing to the success of DT (Dzingirai, 2021).

DT necessitates significant changes in processes, systems, and mindsets. Organisational culture plays a crucial role in change management. A culture that embraces change, supports employees and promotes growth can facilitate successful implementation (Martínez-Caro et al., 2020). Conversely, a resistant culture may create barriers and resistance. Change in organisational culture involves changing values, norms, attitudes, opinions, and ways of thinking, influencing the workforce's behaviour (Nguyen, 2020).

Resistance to change is a significant obstacle in the digital transformation journey for banks. This resistance can result in slow adoption of new technologies, decreased productivity, low morale among employees, and ineffective implementation (Mugge, 2020; Weber, 2022). Employees may be hesitant to embrace new systems, leading to delays in implementation. Additionally, widespread resistance can affect job satisfaction and performance. By addressing these barriers, banks can ensure the successful implementation of digital initiatives in the digital age (Marks and Al-Ali, 2022). Given that this study aims to investigate how DT impacts

performance as well as how employee productivity impacts the achievement of commercial banks' performance objectives, this aspect becomes important to address.

Commercial banks face challenges in their digital transformation efforts due to resistance to change (Poikkimäki and Myllykoski, 2023). These include a lack of leadership alignment, inadequate training and communication, and a culture of complacency. When leaders are not aligned with the vision and goals of DT, resistance can escalate, leaving employees uncertain and resistant. Inadequate training and clear communication about digital changes can also lead to resistance (Albukhitan, 2020; Margiono, 2021). Breaking this culture requires significant effort and leadership support, as employees are accustomed to the status quo and resistant to change.

Although consensus on some DT success factors is noted, scholars do diverge when it comes to the adoption of technology to achieve successful DT. While some argue that banks should adopt cutting-edge technologies such as artificial intelligence (AI) and blockchain to achieve successful DT (Bharadwaj et al., 2013), others suggest that a more cautious approach is necessary (Kane et al., 2017). The latter group argues that banks should carefully evaluate the potential risks associated with new technologies before implementation. These conflicts in the literature stem from the fact that IT capabilities are often associated with heavy investments in IT. This study, therefore, seeks to add more clarity to how DT impacts commercial bank performance.

Successful DT has been seen to require an enabling regulatory environment in the commercial banking sector. This was the case in China (Xie & Wang, 2023) and Egypt (Hashem, 2020), where regulation was used to speed up DT in commercial banks. Studies by McAvoy and Grace (2020) reveal that regulation is critical in ensuring that commercial banks succeed in their DT efforts. In the Zimbabwean context, research by Mawere (2018) highlights that clear and

supportive regulations enable banks to navigate the complexities of DT while ensuring compliance and security. Additionally, scholars emphasise the need for collaboration between banks and regulatory bodies to create an enabling environment for digital innovation.

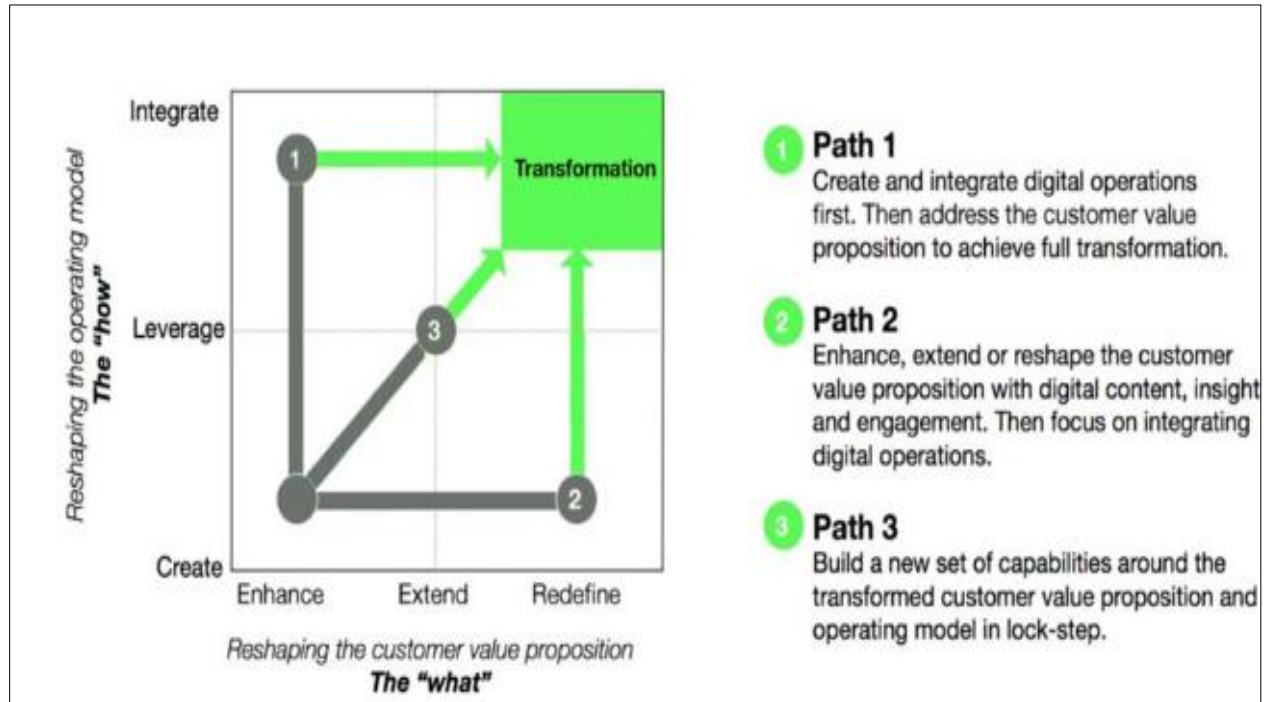
There is disagreement among local scholars regarding the impact of trust and security concerns on successful digital transformation. Some argue that addressing trust issues related to data privacy and security is crucial for gaining customer trust and driving digital adoption (Chikandiwa et al., 2020). On the other hand, other scholars suggest that trust concerns are not significant barriers to digital transformation in Zimbabwean banks, as customers are gradually becoming more comfortable with digital banking services. Several scholars have pointed to different implementation frameworks for organisations to attain successful DT. The following subsection considers these.

2.4.1.7. The Digital Transformation Journey.

Prior research has indicated that DT is a process that necessitates the creation of a clear roadmap toward the DT goal by organisations (Aras & Büyüközkan, 2023). In that regard, several authors have hinted at the divergent steps that organisations may take to achieve DT. Several scholars have coined this step-by-step process, the digital transformation journey (DTJ) (HaiThanh et al., 2021; Papathomas, 2022). Given that this study aims to investigate the impact of DT on commercial bank performance, considering the mediating role of IT capability, it is critical to review the DTJ models.

2.4.1.7.1. Paths to the Digital Transformation Model.

According to Berman (2012), a firm has three options or paths it can take toward a successful DT. These parts are shown in Figure 4 below:

Figure 4*Paths to Digital Transformation*

Note. This model was produced by Berman, 2012 summarising the paths that are available to organisations to achieve DT. From “Digital transformation: opportunities to create new business models,” by S. J. Berman, 2012, *Strategy & Leadership*, 40(2), p. 18.

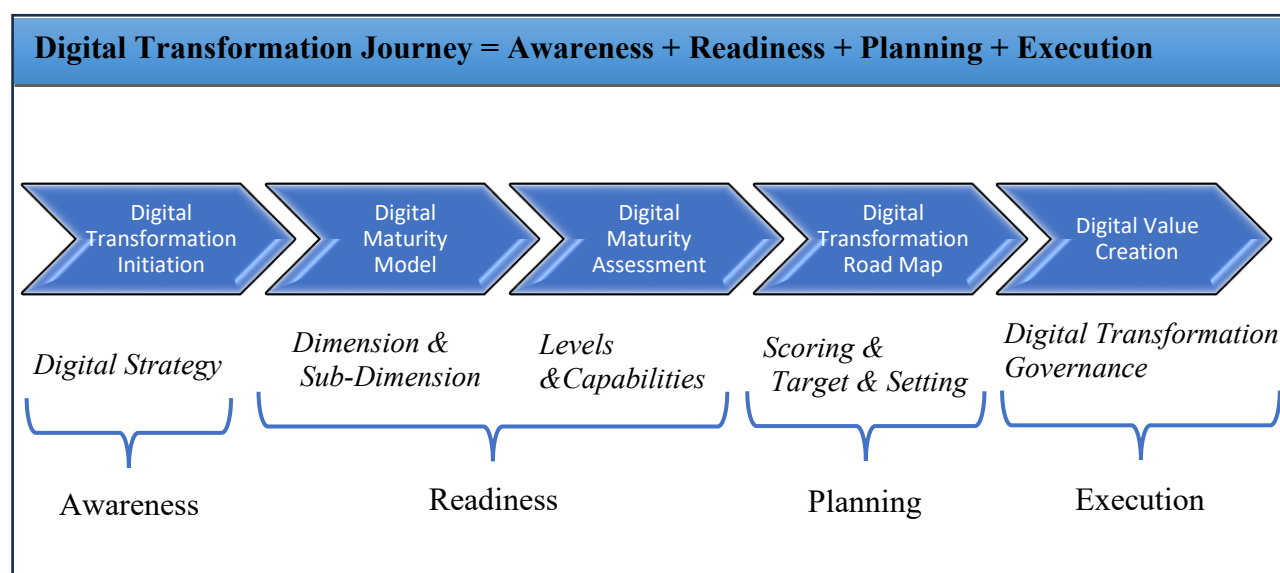
According to Berman (2012), the organisation may choose to follow the first path by ensuring its digital operations are functional and then integrating customer value propositions to complete the DT. Secondly, the organisation may opt to start with the customer before moving to digital operations. The third option involves a concurrent focus on new capabilities as well as customer value propositions. What this model seems to emphasise is the achievement of DT in an organisation.

2.4.1.7.2. The DT Journey Model.

Aras and Büyüközkan (2023) view the path to full DT differently and agree that it is through a DTJ that involves obtaining digital capabilities and converting them into digital assets. In that regard, they propose a digital maturity model comprising the four stages of “awareness, readiness, planning, and execution” (p. 19), as shown in Figure 5 below.

Figure 5

The DT Journey



Note. This model was produced by Aras and Büyüközkan, 2023 summarising the stages that are required for organisations to transition toward creating digital value, thus attaining DT. From “Digital Transformation Journey Guidance: A Holistic Digital Maturity Model Based on a Systematic Literature Review,” by A. Aras and G. Büyüközkan, 2023, *Systems*, 11(213), p. 19.

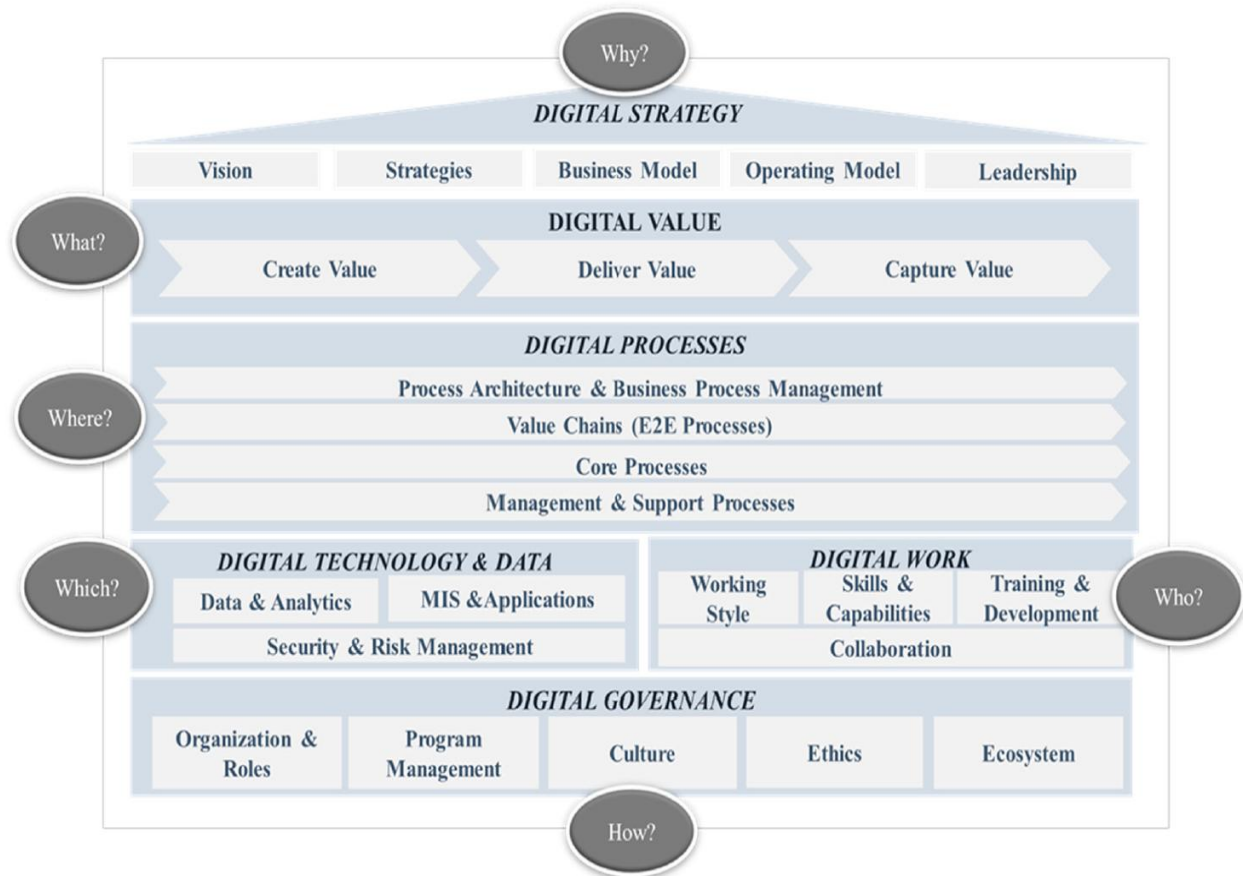
As opposed to Berman’s (2012) path model, which offers different options, Aras and Büyüközkan (2023) argue that the DTJ is made up of sequential steps that dovetail until the digital

value is created. In that regard, the organisations need to start by being aware of the need for DT and deciding to initiate it. Secondly, it must develop a reference model based on the DT scope and identify gaps that the DT exercise intends to close. Within the readiness stage, the firm then assesses its level of capabilities using the established model. This is followed by the planning stage, which entails establishing a roadmap that involves setting targets and prioritising. The fourth and final stage is the execution stage, which results in the creation of the digital value.

While the DT Journey model provides a simple and clear DT roadmap, it appears there is not much literature to support its empirical use. However, it recognises that commercial banks need to assess their IT capability as they transcend the digital transformation journey. This study seeks to establish how IT capability mediates the relationship between DT and commercial bank performance.

2.4.1.7.3. The Holistic Digital Maturity Model.

This model was developed to improve the DT Journey model. This is because the DT Journey model was seen to have failed to address the “why, what, where, which, who, and how questions associated with DT (Aras & Büyüközkan, 2023, p. 20). To that end, they developed a holistic digital maturity model that is more comprehensive, as shown in Figure 6:

Figure 6*The Holistic Digital Maturity Model*

Note. This model was produced by Aras and Büyüközkan, 2023 giving a holistic digital maturity model required as a catalyst for achieving DT. From “Digital Transformation Journey Guidance: A Holistic Digital Maturity Model Based on a Systematic Literature Review,” by A. Aras and G. Büyüközkan, 2023, *Systems*, 11(213), p. 20.

The holistic digital maturity model by Aras and Büyüközkan (2023) identifies six dimensions of “digital strategy, digital value, digital process, digital work, and digital governance” (p. 20), which correspond to responding to the six questions of “1. What is DT aimed at? 2. What

value does it offer? 3. In which processes should the organisation apply DT? 4. Which technologies support DT? 5. Who implements DT? And how is DT sustained?" By answering these questions, this model assists organisations along their DT journey and ensures that it is sustained.

2.4.1.7.4. Digital Transformation Lifecycle

Conversely, Papathomas and Konteos (2023) seem to view the DT journey as a simple three-phase approach. They view the process of achieving DT as made up of the preparation, journey, and destination phases. In their examination of the DT journey in banks, Papathomas and Konteos argue that incumbents start by ensuring that their digital technologies are aligned with their strategic concerns. Selimović et al. (2021) agree and point out that at this stage, digitisation is done to back-end processes, and organisational leadership begins to commit the firm to the new digital reality. The second phase entails digitalising the organisation; management needs to share the organisation's digital vision with all employees. Further, the firm may create a new department that will assist with culture change as well as collaborate with fintech to enhance digital capability (Hanafizadeh & Amin, 2022). At this stage, the value proposition must be communicated to customers.

Finally, the last phase is the actual DT phase. In the case of commercial banks, Papathomas and Konteos (2023) illuminate that the banks would have moved the larger portion of in-house capabilities to their external service channels and have acquired the capacity to offer digital-only products. Some authors (Volberda et al., 2021; Warner and Wager, 2019) agree that incumbents utilise technology at this stage to revolutionise their current activities.

While this model seems to have recognised IT capability as instrumental in impacting DT success and has concentrated on commercial banks (which is the domain of this study), it is not

clear how implementing DT using that model will impact the performance of commercial banks. This provides further evidence that this study will assist in a better quantification of how DT impacts commercial bank performance, considering the mediation of IT capability.

Based on the evidence presented, it can be seen that there is no overall convergence among scholars regarding what constitutes DT success factors (Aras & Büyüközkan, 2023; Chikandiwa et al., 2020; Morakanyane et al., 2020; Qureshi et al., 2020; Verhoef et al., 2021; Xie & Wang, 2023). Whether IT capability results in successful DT as measured by improved commercial bank performance is, therefore, a matter that calls for further inquiry.

2.4.2. IT Capability

IT capability refers to an organisation's ability to effectively leverage information technology resources to achieve its strategic goals (Saunila, 2020). It can be seen as the expertise to effectively and efficiently harness information technology resources and competencies to meet an organisation's strategic objectives and gain a competitive advantage (Ritter & Pedersen, 2020). Some authors (Cenamor et al., 2019; Saunila, 2020) conceptualise it as the organisation's capacity to leverage IT assets, including hardware, software, data, and human expertise, to adapt to changing business environments, innovate, and drive business outcomes. Its components include technical infrastructure, human resources, processes, and strategic alignment.

2.4.2.1. Components of IT Capability.

Technical infrastructure forms the foundational component of IT capability. According to Zhu et al. (2019), it includes the hardware, software, network systems, and data centres that underpin an organisation's IT operations. In the case of Zimbabwean commercial banks, DT may result in them having robust and scalable technical components of IT capability (Suddaby et al., 2020). This is because banks may end up having modern, secure, and reliable IT systems.

Human resources are a critical component of IT capability. This entails having a skilled workforce with the expertise to manage, maintain, and innovate with technology (Mikalef & Gupta, 2021). For Zimbabwean commercial banks, this means having IT professionals who are proficient in areas such as cybersecurity, data analytics, software development, AI, and digital strategy. Bag et al. (2021) noted that investing in continuous training and development is crucial to keeping IT skills current.

Effective IT capability is not just about having the right technology and people; it's also about having efficient processes and practices in place (Tiwari, 2022). According to George and George (2023), this includes IT governance, project management methodologies, and IT service management (e.g., Information Technology Infrastructure Library) that ensure the efficient use of IT resources, compliance with regulations, and alignment with business objectives. This becomes key for commercial banks given the risks associated with cybersecurity. Customers are likely to prefer banks with secure platforms, thus giving them an edge over the competition.

According to Gurbaxani and Dunkle (2019), strategic alignment is perhaps the most crucial component of IT capability, especially in the context of DT. It involves ensuring that IT initiatives are closely integrated with the overall strategic goals and objectives of the organisation. In the case of Zimbabwean commercial banks, strategic alignment means that digital transformation efforts are designed to enhance customer experiences, streamline operations, and achieve a competitive edge in the local and global financial markets (Rodríguez-Abitia & Bribiesca-Correa, 2021).

2.4.2.2. Strategies for Enhancing IT Capability

Regularly updating and modernising the IT infrastructure should be a fundamental strategy. Organisations need to adopt emerging technologies strategically, ensuring that their technology stack remains current, efficient, and aligned with the digital transformation goals (Elia et al., 2021).

This involves not only upgrading hardware and software but also considering the adoption of transformative technologies like cloud computing, artificial intelligence (AI), and data analytics to stay competitive in the digital age.

Investing in the training and upskilling of IT staff is crucial to keeping pace with technological advancements. Brown et al. (2020) noted that organisations must recognise the importance of a highly skilled IT workforce in driving digital transformation. This strategy includes providing continuous learning opportunities, certifications, and exposure to new technologies. It also involves fostering a culture of innovation and encouraging employees to adapt to evolving IT trends.

To ensure the successful alignment of IT capabilities with broader Organisational objectives, it is imperative to integrate IT strategies with the overall business strategy. This means that IT leaders should actively engage with senior management to understand the business's immediate and long-term goals. By doing so, they can tailor IT investments, projects, and priorities to directly contribute to achieving those objectives (Giannakos et al., 2021). Alignment ensures that IT resources are allocated to initiatives that deliver the most significant business value.

Robust governance and risk management practices are essential components of enhancing IT capability. Effective IT governance frameworks, such as ITIL or COBIT, should be in place to guide decision-making, ensure transparency, and optimise resource utilisation. According to a study by Rodríguez-Espíndola et al. (2022), organisations must be proactive in managing risks associated with IT, including cybersecurity threats, compliance challenges, and data privacy concerns. By addressing these risks systematically, organisations can prevent disruptions and protect their digital assets.

A study by Sousa-Zomer et al. (2021) found that IT capability enhancement is an ongoing and dynamic process. Organisations must adopt a culture of continuous improvement where they regularly assess their IT capabilities and adapt to evolving IT needs. This involves conducting periodic IT capability assessments, identifying areas for improvement, and implementing necessary changes. Continuous improvement also includes staying vigilant about emerging technologies and industry trends, ensuring that the organisation remains agile and responsive to market shifts.

In summary, these strategies collectively contribute to enhancing an organisation's IT capability, which is fundamental for the successful implementation of digital transformation initiatives. By investing in technology, developing a skilled workforce, aligning IT with business objectives, implementing sound governance, and maintaining a commitment to continuous improvement, organisations can build the necessary foundation to thrive in the digital era.

In recent years, DT has been seen as quite impactful in enhancing employee productivity as it affects several facets of their work and productivity. Employee productivity has been defined as the quality and quantity of work that an organisation's workforce accomplishes within a specified timeframe in accordance with the responsibilities given to them (Sebayang & Lestario, 2021; Rochmawati & Indiyati, 2022). Employee productivity is considered central to the success of any organisation (Shwedeh et al., 2023). This has prompted several organisations to implement various initiatives to enhance the performance of their employees, including upskilling in DT-related initiatives.

2.4.3. IT Innovation

The concept of innovation has not been easy to define. This is not surprising given that several authors seem to classify the concept of innovation as complex and multifaceted (Alshemeili

& Safei, 2023; Khan et al., 2020). Although innovation has been simplified to mean the generation and implementation of a new idea to create a service, product or process (Kogabayev & Mazilizuskas, 2017), its definition has largely been deferred to the seminal work of Schumpeter (1934) who viewed the innovation as the effects of technological changes on the economy and the application of new or combination of productive forces to find solutions for existing business problems. However, the literature reveals that various definitions have resulted from the concept being viewed from different contextual lenses in the academic field (Taylor, 2017).

Consequently, IT innovation is regarded as the creation and development of new technological tools, applications, products and solutions to drive societal progress (Khan et al., 2020). IT innovation in banks has been regarded as encapsulating the adoption of electronic banking (e-banking), the use of ATMs, internet banking, and SMS banking, and other IT-related tools such as AI, cloud computing, chatbots, and big data analysis, among other emerging technologies (Kong & Masud, 2019).

2.4.4. Organisational Performance

Studies touching on Organisational performance seem to loosely use performance and profitability interchangeably, yet these are not the same. For example, Kriebel and Debener's (2019) study on the impact of DT on commercial bank performance is often juxtaposed with Huang's (2021) study on the impact of DT on commercial bank profitability, giving the notion that profitability equates to performance. According to Conțu (2020, p. 38), the performance of an organisation is not one-dimensional, as in profitability alone, but "refers to the degree to which the organisation, with some informational, financial, and human resources, positions itself effectively on the business market. A clearer definition is offered by Doval (2019), who posits that

performance is concerned with what the company produces against what it sets out to do, that is, output as measured against objectives.

Specifically, Richard et al. (2009) view Organisational performance in terms of financial, product, and shareholder aspects. In that regard, financial performance is measured by profitability, net asset value, balance sheet size, return on investment, and return on assets, among other metrics. Product performance can be seen in growth in sales, market share, and customer satisfaction. Further, performance is measured in terms of shareholder satisfaction, which is measured by the return given to shareholders in the form of economic value added and total shareholder return.

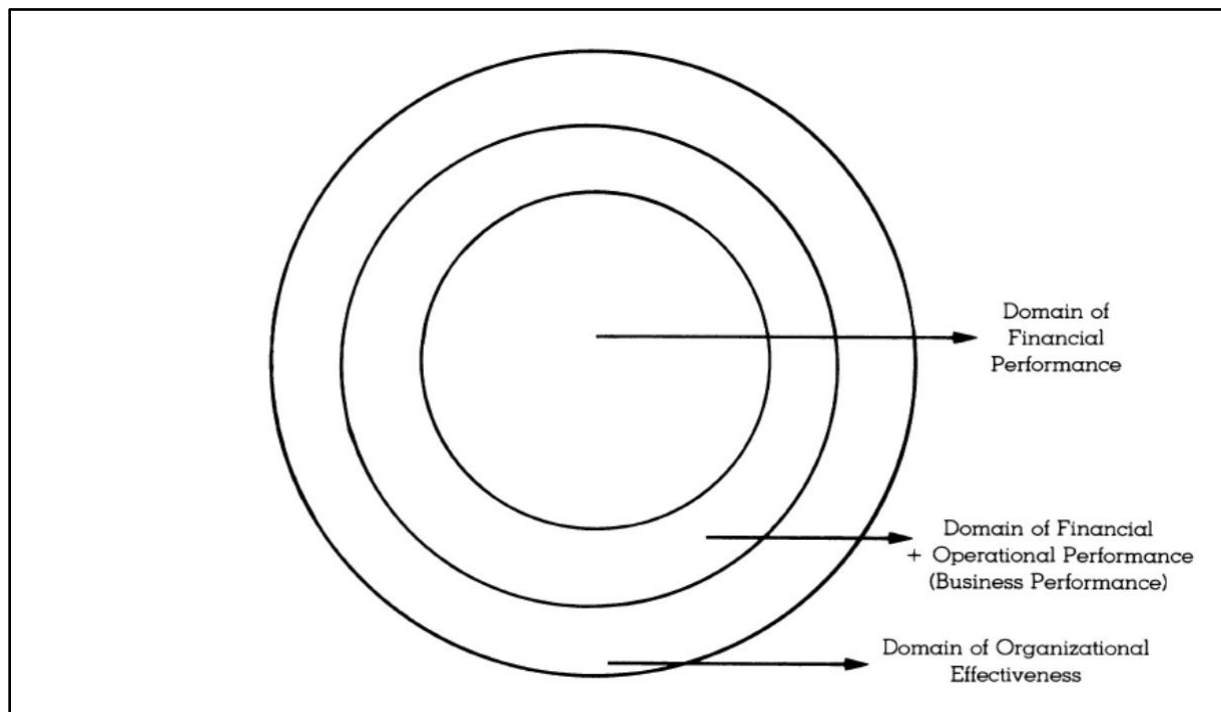
As can be seen from the above, the concept of performance is not easy to define. However, several scholars agree that performance is a reflection of where the company is at any given point in time, measured against the organisation's strategic intentions (Bandono & Nugroho, 2023; Doval, 2019). Profitability is a narrow part of performance (Richard et al., 2009), as it is concerned with measuring the difference between revenue and expenses for a given trading period and can be measured by various metrics such as gross profit margin, net profit margin, operating margin, return on assets, return on capital employed, return on equity, and price-earnings ratio, among others (Coulon, 2020). For the sake of this study, performance will thus be seen as a commercial bank's achievement of its key performance indicators.

2.4.4.1. Measuring Organisational Performance.

One of the frameworks that has been reviewed as a useful tool to measure Organisational performance is the Balanced Scorecard (BSC) approach. According to Dias and Irawati (2020), the BSC gives firms the ability to measure and monitor performance using the financial, customer, and internal business processes, as well as the innovation and growth perspectives. This leads to a

more holistic measure of performance than in the past, when only financial performance was considered. Indeed, Laury et al. (2020) observe that financial performance is not easy to measure due to various factors that complicate the process. For example, while Al-Khatib and Al-Khoury (2019) concede that the use of the BSC was effective in measuring the performance of commercial banks in Lebanon, Abuzarqa (2019), through a case study of Kuwait banks, used specific ratios such as return on assets, total loans to total assets, and retained earnings to assets, among others, to measure their performance. Often, the study of Organisational performance has been seen to capture both qualitative and quantitative aspects. In that regard, Venkatraman and Ramanujam's (1986) model for measuring financial performance becomes key.

As depicted in Figure 7, Organisational performance sits in three subsets of Organisational effectiveness, which encapsulate both operational and financial performance. According to Kamenda and Qutieshat (2021), the Organisational performance model by Venkatraman and Ramanujam's (1986) domain of business performance model is useful in measuring Organisational performance as it considers both financial and non-financial indicators for firm performance. These metrics include market share, customer satisfaction, and innovation. Furthermore, they observe that this model is flexible as it can be applied in different industries, including the commercial banking sector, which is the focus of this study.

Figure 7*The Domain of Business Performance*

Note. This model was produced by Venkatraman and Ramanujam (1986), showing that approaches to measuring firm performance have three domains that are made up of both qualitative and quantitative aspects. From “Measurement of Business Performance in Strategy Research: A Comparison of Approaches” By N. Venkatraman, & V. Ramanujam, 1986, *The Academy of Management Review*, 11(4), p.803.

The quantitative aspects of financial performance, such as ROA, ROE, EPS, and ROA, reside in the financial domain. Insofar as measuring financial performance for commercial banks is concerned, this study embraces this framework as it not only addresses the study objectives but also aligns with similar studies (Gržeta et al., 2023; Kamenda & Qutieshat, 2021; Matey, 2021). According to Ali et al. (2022), the use of quantitative metrics in measuring performance is

recommended. Several studies adopted ROA, ROE, and net interest margin to measure commercial bank performance (Bansal et al., 2018; Chen et al., 2018; Derbali, 2021).

The domain of ‘financial and operational performance’ encapsulates such metrics as market share, innovation, effectiveness of marketing, efficiency of the business, and product quality, among others. The importance of this domain to this study is that it will allow the research to measure DT success or impact on performance by measuring such areas as market share growth. This complies with Hughes and Mester (2014), who posit that scholars should consider both qualitative and quantitative metrics to capture the various elements of performance, given the complexity of measuring commercial bank performance. Consequently, this study utilised some qualitative metrics given that they reveal how an organisation is performing (Venkatraman & Ramanujam, 1986), making them important in DT.

According to Mbama and Ezepuc (2018), most studies have considered the first two domains owing to the complexity associated with assessing how the broadest performance indicator, as represented by Organisational effectiveness, impacts firm performance. That as it may, ‘Organisational effectiveness’ is measured by considering a firm’s achievement of intended goals, its survival, reputation, and perceived overall performance. It can be argued that innovation and IT capability form part of the above set; thus, they will be investigated to check on their impact on firm performance.

As indicated earlier, tools such as the BSC and the organisational performance model by Venkatraman and Ramanujam (1986) are useful tools that assist in measuring organisational performance (Dias & Irawati, 2020; Kamenda & Qutieshat, 2021). Both models make use of qualitative and quantitative metrics to measure performance. In order to assess the impact of DT on commercial bank performance, this study will make use of both quantitative and qualitative

metrics, such as profitability (ROE and ROA), balance sheet size, customer satisfaction, market share, and innovation so as to conform with both the BSC and Venkatraman and Ramanujam's (1986) domain of business model.

To achieve enhanced robustness of the commercial bank performance measurement, this study adopted a mixed-sources approach, which saw the combination of perceptual data from employee surveys with objective secondary data on ROA obtained from published financial statements of the thirteen commercial banks. Thus, the triangulation strategy addressed the limitations of single-source data and aligns with best practices in organisational performance research (Kamenda & Qutieshat, 2021).

2.4.4.2. Commercial Bank Performance Indicators.

These have been defined as quantifiable metrics that indicate how successful an organisation is in achieving its performance targets (Sackitey, 2019). Numerous studies have been done in the commercial banking sector with a view to establishing key performance indicators (KPIs). Many such studies have used traditional metrics such as the return on assets (ROA) and the return on investment (ROI) as the main performance indicators for commercial banks (Ncube, 2009). However, Nazneen et al. (2019) view these traditional KPIs as inadequate as they leave gaps when analysing a commercial bank's overall performance. Rather, the authors suggest the need to consider performance broadly by not only considering the financial perspective but also including the customer perspective, internal business processes perspective, and employee perspective as measured by their learning and growth.

Given the plethora of commercial bank performance KPIs (Sackitey, 2019), it is essential to identify measures that will indicate the impact of DT on commercial bank performance. In line with Nazneen et al. (2019), who emphasise the need to view performance holistically, this study

will therefore use profitability (ROE and ROA) and balance sheet size as the financial KPIs. Customer satisfaction and market share will be the KPIs to measure the customer perspective.

In essence, this study agrees with the view that, in general, organisational performance is achieved when an organisation achieves its intended objectives (Bandono & Nugroho, 2023; Doval, 2019). While the measurement of performance has been seen as complex (Mbama & Ezepeuc, 2018), the use of the BSC will be blended with Mbama and Ezepeuc's (2018) business domain model, which considers performance as constituting both quantitative and qualitative aspects. Consequently, this study will consider quantitative metrics such as ROA (obtained from secondary data) in the quantitative domain; customer satisfaction will form the operational performance domain measured through the employee survey; market share, innovation, and IT capability will be considered under the organisational effectiveness domain captured via primary data.

2.5. Digital Transformation and the Performance of Commercial Banks

As has been seen in earlier sections, the subject of DT is complex, multifaceted and requires a contextual quantification. Since this study focuses on DT in the context of commercial bank performance, it will be essential to examine it in that context before linking it to the performance of commercial banks. Therefore, the sections below will begin by considering the evolution and global trends in DT. This enables the study to provide a contextual background of the topic under review. Secondly, the status of DT in Zimbabwe will be assessed, and the last subsection will consider the link between DT and the performance of commercial banks.

2.5.1. Evolution of and Global Trends in Digital Transformation.

The genesis of DT cannot be pinpointed with certainty in the literature, as there is significant discord concerning when it began. This is because views on the evolutionary

development of DT are fragmented (Maksimenko, 2021). While such authors as Bongiorno et al. (2018) argue that the DT journey started around 2012, many others hint that DT was initiated in nuanced forms in the late 1990s and early 2000s (Schallmo et al., 2018). Yet others, like Verhoef et al. (2021), maintain that DT started in the form of digitisation, morphed into digitalisation, and eventually led to the concept of DT; therefore, one cannot pin down with certainty how and when it began. If one considers digitisation as the first step in DT (Verhoef et al.), then it can be said that this concept started making inroads in the banking sector in the early 2000s (Vikas et al., 2022).

It is, however, not in dispute that the pace of DT accelerated in recent years as commercial banks sought to improve their performance (Abdulquadri et al., 2021; Abuhasan & Moreb, 2021; Ajigina & Chinamasa, 2023). The incidence of the COVID-19 pandemic was also seen as catalysing the implementation of DT. There is an agreement among scholars that global trends in DT have been in the form of increased use of artificial intelligence (AI), cloud computing, the Internet of Things (IoT) and data analytics (Tekle & Kumar, 2024). In recent years, the use of 5G technology, machine learning and blockchain technology has seen significant changes in how organisations operate. In the commercial banking space, the use of chatbots and mobile banking applications has been rising. Having established the theoretical relationships among the study variables, the next section reviews empirical evidence from prior studies that have examined these relationships in the commercial banking sector.

2.5.2. DT in Global and Regional Banks.

A glance at the literature reveals that several banks implemented DT successfully. In Singapore, DBS Bank successfully implemented DT, significantly improving its performance (Sia et al., 2021). Similarly, several banks in Greece implemented DT using a phased approach by integrating digital technologies into traditional banking models, which resulted in improved

operational efficiency and customer satisfaction (Papathomas & Konteos, 2022). Lóska and Uotila (2023) studied DT in the context of a top European corporate bank and discovered improved efficiency emanating from the implementation of DT. Likewise, Jayashree and Jayakani (2023) studied DT in Indian banks, and they found that the majority of consumers were impressed with the innovative services brought about by DT in the banking sector.

Additional studies have highlighted the significance of DT in the commercial banking sector from a global standpoint (Boufounou, 2022; Diener & Špaček, 2021; Kitsios et al., 2021). Xie and Wang (2023) argue that DT is critical for organisations, emphasising the need for banks to embrace digital technologies to stay competitive. They highlight the importance of customer-centric strategies and the integration of digital capabilities across all aspects of banking operations. Similarly, studies by Brown and Grant (2020) conclude that DT is crucial for banks to optimise their operations, enhance customer experiences, and improve overall efficiency by leveraging emerging technologies, such as artificial intelligence, blockchain, and big data analytics, to drive innovation and gain a competitive edge. Several scholars concede that DT has a positive impact on customer experience. For example, in their studies on the Palestinian banking sector, Abuhasan and Moreb (2021) conclude that DT has had a positive influence on customer experience due to the attendant flexibility it brings.

However, there are also differing opinions regarding the extent of digital transformation in the commercial banking sector. Several authors suggest that while some organisations have fully embraced digital transformation, others are lagging due to various barriers such as organisational culture (Boufounou et al., 2022), framework-related challenges (Diener & Špaček, 2021; Sia et al., 2021), and resistance to change (Reis & Melao, 2023). In China, for example, "the Bank of

China issued the FinTech Development Plan twice in 2019 and 2022, emphasising the need to accelerate the DT of financial institutions" (Xie & Wang, 2023, p. 35). This indicates that not all banks have achieved the same level of digital maturity, leading to a disparity in the adoption and implementation of digital initiatives.

Moving from a global perspective to a regional focus, it is essential to examine studies that provide insights into DT in commercial banking within specific regions. Modiba et al. (2020) considered that the IT capability framework for South African banks has encountered several challenges that have stifled DT. This is even though DT has led to a fundamental shift in the way banks operate, requiring them to redefine their value propositions and business models in response to changing customer expectations. In that regard, Modiba et al. (2023) argued for the need for a unique DT framework for South African banks, given the unique circumstances that differ from those obtained in the Western world.

In contrast, Khams (2022) examines the impact of DT on strategies relating to staffing in the banking sector in Egypt, emphasising the positive impact of digital technologies on improving operational efficiency for banks, reducing banking costs, and enhancing back-office risk management. The study reveals that Egyptian banks have made significant strides in implementing DT with the development of "new channels such as QR technology and chatbots" (p. 459). These results indicate that while digital transformation presents challenges, it also offers significant opportunities for banks to streamline their operations and improve overall performance.

While the literature has significant examples of DT success stories, DT initiatives have been seen to be awash with challenges that may negatively impact performance. This is because issues related to cybersecurity may dent customer trust, thereby negating the benefits of DT

(Ahuchogu et al., 2024). The Wells Fargo DT scandal also highlights the risk of DT in cases where there is inadequate governance in digital initiatives (Wang & Guarino, 2021). The bank suffered heavy financial and reputational damage, thus questioning whether DT improves performance. These mixed results in the literature suggest that there is a need for further studies to help quantify the extent to which DT impacts bank performance.

2.5.3. Research Context: Status of DT in Zimbabwean Commercial Banks.

At this juncture, it is important to consider the state of DT in Zimbabwe as this is the focus country for this study. DT in Zimbabwe has been adopted by Zimbabwean commercial banks, although the pace has been slow (Kaondera et al., 2023). This is surprising given that a recent survey by Kunicova et al. (2021) noted that the bulk of transactions by Zimbabwean banks are now being done digitally, implying a strong backbone for the effective implementation of DT by Zimbabwean banks. That as it may, as Mataruka et al. (2023) observe, Zimbabwe has faced challenges in its IT infrastructure, including reliable internet connectivity and access to technology, thereby affecting the pace of DT in banks. Similarly, Masinire (2023) concluded that DT in Zimbabwe has been affected by high technology costs and suggests that this can be mitigated by commercial banks partnering with Fintechs. Given this background, it is indeed worthwhile to investigate whether DT in the context of Zimbabwean commercial banks will aid their performance.

Studies in the Zimbabwean banking sector indicate that regulation plays a key role in advancing the notion of DT (Furusa et al., 2022). This is because a conducive regulatory framework is essential for encouraging innovation and investment in digital technologies. The regulatory environment in Zimbabwe has encouraged banks to expedite DT to provide banking services to the unbanked population in remote areas (Fairhurst et al., 2021; Phiri, 2020). In

addition, the success of DT is closely linked to the development of digital skills among the workforce and the general population. According to Gurbaxani et al. (2019), evaluating the availability of training and educational programs for digital skills would be relevant. Zimbabwean banks have realised this, and recent studies indicate an increase in DT-related training (Kitsios et al., 2021).

While many researchers have investigated DT in Zimbabwe, the studies have been done from different perspectives. A number of these studies have considered DT in Small to Medium Enterprises (SMEs) (Mataruka & Muzurura, 2023), Universities (Maphosa, 2023), and the public sector (Gondo & Suwaryono, 2024). Studies in the banking sector have focused on DT's impact on customer experience (Hokonya, 2024; Kaondera et al., 2023). Concerning the banking sector, the literature lacks studies that have specifically looked at the impact of DT on commercial bank performance, considering the mediating role of IT capability. As Masinire (2023) illuminates, costs associated with IT seem to have hindered Zimbabwean banks from fully leveraging IT capability to influence the impact of DT on commercial bank performance. This makes the commercial banking sector in Zimbabwe an excellent choice for inquiring about the impact of DT on commercial bank performance, considering the mediating role of IT capability.

2.5.3.1. Challenges in Digital Transformation Implementation.

Zimbabwean commercial banks face specific challenges when implementing digital transformation initiatives, including regulatory constraints, economic instability, and legacy systems. Understanding these challenges is vital for evaluating the role of IT capability in overcoming them. Existing research (Majukwa et al., 2020; Mhlanga et al., 2023) sheds light on the unique challenges Zimbabwean organisations, including banks, face during digital

transformation. Studies (Grover, 2022) on the role of IT capability in addressing challenges during DT can provide insights.

(i) Regulatory Constraints.

Zimbabwean banks operate in a regulatory environment that may not always keep pace with rapid technological advancements. Compliance with regulations and ensuring data security are critical concerns for banks implementing digital transformation (Cichosz et al., 2020). Regulatory constraints can slow down or limit the scope of digital initiatives, thus negatively impacting the impact of DT initiatives on performance. The regulatory environment in Zimbabwe has, however, tried to encourage banks to use DT so that they improve financial inclusion (Chitimira & Torerai, 2021). The same regulation seems to fall short in supporting banks to have strong IT capabilities. According to Tiburtino (2023), strong IT capabilities will assist Zimbabwean commercial banks to have the technical infrastructure and expertise to implement security measures and compliance protocols effectively.

(ii) Economic Instability.

Zimbabwe has faced periods of economic instability, including hyperinflation and currency fluctuations. These factors can impact the budget available for digital transformation projects, making it challenging to invest in technology and talent. IT capability can help banks optimise their IT spending during economic downturns (Mullan & Rolleston, 2020). This involves cost-effective management of existing IT assets, prioritising high-impact digital projects, and exploring innovative ways to achieve digital goals without excessive spending (Kumar et al., 2021). Additionally, IT capability can enable banks to leverage digital solutions for operational efficiency, which is crucial during times of economic uncertainty (Spitzer & Wimmer, 2021).

(iii) Legacy Systems.

Many Zimbabwean banks may have legacy IT systems that are outdated, inflexible, and not well-suited for digital transformation (Gkrimpizi & Peristeras, 2022). Integrating new digital technologies with legacy systems can be complex and costly. A robust IT capability can facilitate the modernisation of legacy systems. It includes the expertise to assess the current state of IT infrastructure, plan system upgrades or replacements, and execute migrations smoothly (Gkrimpizi et al., 2023). IT capability also involves managing data migration, ensuring data integrity, and minimising disruptions during the transition. According to Rapkin (2022), effective IT capability can turn legacy system challenges into opportunities for digital advancement.

(iv) Talent and Skills Gap.

Acquiring and retaining IT talent with the necessary skills for digital transformation can be a challenge, particularly in a competitive job market (Cueto et al., 2022). IT capability encompasses developing and nurturing in-house IT talent. Banks can invest in training programs to upskill their existing workforce in areas like cybersecurity, data analytics, and digital strategy (Mukhuty et al., 2022). Additionally, Tiburtino et al. (2023) noted that firms can establish partnerships with educational institutions to attract new talent and ensure a pipeline of skilled professionals. A strong IT capability supports talent development and retention, which is essential for digital success.

2.5.3.2. Relevance in Existing Literature.

Research by Chiguvi et al. (2023) highlights the unique challenges faced by Zimbabwean organisations, including banks, during digital transformation. These studies emphasise the importance of understanding the local context and challenges specific to the region. Prior studies (Gkrimpizi et al., 2023; Gkrimpizi & Peristeras, 2022) emphasise that IT capability is not just

about having technology but also about using it effectively to address challenges. In the context of Zimbabwean banks, a strong IT capability can be a strategic asset for overcoming regulatory, economic, legacy system, and talent-related challenges during digital transformation.

Overall, limited research exists on this topic within the Zimbabwean context, indicating a research gap that needs further exploration. That as it may, an exploration of the limited studies reveals that despite the pressure being exerted by FinTechs and Mobile Network Operators (MNOs) on Zimbabwean commercial banks, as well as by bank customers who have since accepted technological advancements, the adoption of DT in Zimbabwe has been slow (Kaondera et al., 2023).

While scholars generally agree on the importance of digital transformation in the commercial banking sector, there are areas of disagreement regarding its effect on performance. Some researchers argue that digital transformation may lead to job losses and reduced human interaction, potentially affecting customer satisfaction (Brown & Grant, 2020). Others, however, suggest that digital transformation can enhance customer experiences by providing faster and more convenient banking services (Smith, 2018).

2.5.4. Linking DT and Commercial Bank Performance

The link between DT and commercial bank performance has started receiving considerable attention from scholars, although the area is still budding and studies are skewed toward European and Asian regions (Nguyen-Viet & Nguyen, 2023; Zhu & Jin, 2023). Huang (2021) argues that DT has a significant impact on profitability for non-state-owned banks and further argues that the impact of DT on profitability is dependent upon the size of the bank. This study focused on state-owned banks, suggesting there is a need to widen the sample by looking at a wider sample that

includes non-state-owned banks, something that this study seeks to do. A similar study on Vietnamese banks by Pham et al. (2022) also concluded that the larger the bank, the greater the positive influence on performance.

In contrast, Nguyen-Viet & Nguyen (2023), using regression analysis, concluded that DT negatively impacts ROA and ROE in Vietnamese banks, and this chimes with Kriebel and Debener (2019), who studied German banks. This is attributed to the huge costs associated with investing in IT infrastructure to facilitate DT. Research has shown that less than 30% of DT efforts succeed, with companies like Lego, Nike, and Burberry experiencing poor performance despite investing millions in DT (Sia et al., 2021). Nevertheless, Nguyen-Viet and Nguyen concede that DT positively impacted performance through reduced costs during the COVID-19 pandemic as commercial banks employed the work-from-home model. Further studies by Zhu and Jin (2023) that used all commercial banks in China as samples concluded that there is a minimal impact of DT on commercial bank performance.

Indeed, the results on the impact of DT on commercial bank performance are far from consistent (Zuo et al., 2021). While some scholars believe that DT hurts commercial banks' performance by increasing the costs of technological investments (Xie & Wang, 2023), and stress to employees (Kadur & Rajshekar, 2022), other studies have associated DT with improved operational efficiencies and improved service capabilities, thus resulting in improved performance (Huang, 2021; Pham et al., 2022; Soesilo & Tampubolon, 2023). These diverging results are therefore problematic in the field of DT and suggest the need for further studies on the impact of DT on commercial bank performance.

2.6. Digital Transformation and IT Capability

This study sought to measure the influence of DT on the IT capability of commercial banks in Zimbabwe. In order to achieve this objective, it is important that this subsection reviews the literature around the key variable of IT capability as well as the hypothesised relationship.

2.6.1. Linking DT with IT Capability

Recent research seems to associate the implementation of DT with increased investment in IT (Barba-Sánchez et al., 2024). The adoption of DT by firms has therefore required that organisations take stock of their IT capacity. It has been observed that DT results in firms adopting a pronounced digital orientation and results in an enhanced IT capability. Abdurrahman et al. (2024) show that DT allows banks to modernise their IT systems. The result is an agile and scalable IT capability as supported by Sia et al. (2021), whose study of the DBS Bank in Singapore showed an improvement in the bank's IT capability due to the implementation of DT. In addition, the implementation of DT may require that banks apply modern technologies such as AI, cloud computing, the use of chatbots, the IoT and big data analysis, and this calls for modern IT infrastructure that is capable of handling these (Makovoz & Sergii Lysenko, 2024). Similarly, DT will require that employees be upskilled, thus enhancing the digital capability of banks (Porfirio et al., 2024).

Although a significant number of studies have been carried out on how DT impacts IT capability (Abdurrahman et al., 2024; Barba-Sánchez et al., 2024; Madanayake & Yapa, 2024; Makovoz & Sergii Lysenko, 2024; Porfirio et al., 2024; Sia et al., 2021), several gaps are seen in these studies. First, Sia et al. (2021) utilised a case-study approach, which is problematic when it comes to the generalizability of the results. Using a survey approach, this study seeks to address this gap. In addition, the study was done in Singapore, whose context is different from Zimbabwe.

This raises concerns regarding geographical context as well as the population used. Similarly, Porfirio et al. used a qualitative approach, making the use of a quantitative approach timely. Several studies that used a quantitative approach applied secondary data only. The use of primary data in this study, therefore, will assist in achieving methodological diversity.

2.7. Digital Transformation and Employee Productivity

Recent studies seem to suggest that DT positively influences the performance and productivity of employees. Several studies (Adewumi et al., 2024; Shwedehe et al., 2020; Khadragy et al., 2022; Ridwan et al., 2020) returned a positive association between DT and employee productivity. However, while the methodological approaches in these studies seem to be sound, there are some limitations in these studies that may raise concerns about their generalizability. That these studies were done mainly in Asia and the Middle East (Shwedehe et al., 2020) and that the industries in question did not include the banking sector may limit the application of these results to populations in other jurisdictions and industrial sectors. While these studies provide valuable insights into the relationship between DT and employee productivity, incorporating studies from different jurisdictions and industries would strengthen confidence in the reported results.

Although Priyanka and Supriya (2022) evaluated the impact of DT on employee productivity in the banking sector and found a positive association, their methodological approach raises concerns about the representativeness of their results. This is because they used a small sample size of 35 employees from just two banks in India. McDermott (2023) argues that small sample sizes pose such challenges as regression toward the mean due to the limited observations for analysis. This study sought to address this by targeting 13 banks and 361 respondents. Other studies (Sivasamy, 2023) illuminate that small sample sizes may result in skewed outcomes and a

lack of statistical power. Consequently, inquiring into the impact of DT on employee productivity in Zimbabwe and the banking sector using a bigger sample size thus becomes timely.

While some studies have established a positive association between DT and employee productivity (Shwedehe et al., 2020; Khadragy et al., 2022; Priyanka & Supriya, 2022; Ridwan et al., 2020), several challenges that negatively impact performance emanating from the implementation of DT have been highlighted in some studies. Several authors (Karaboğa & Şehitoğlu, 2024; Kensbock & Stöckmann, 2021; Makowska-Tłomak et al., 2023) have identified challenges such as increased stress and anxiety related to job security and the need to update skill set, blurred work-life boundaries owing to shift to remote work as employees feel obligated to be available beyond traditional working hours, reduced autonomy as well as connectivity and resource challenges that may lead to increased frustration by employees in remote or under-resourced areas. This inconsistency in the study results presented in the literature suggests that there is a need for further inquiries in order to add more clarity to how DT interacts with employee productivity.

2.8. Digital Transformation and IT Innovation

This section discusses how DT is linked to the key variable of IT Innovation. This aligns with the study's third objective, which seeks to establish the extent to which DT affects the IT innovation of commercial banks in Zimbabwe.

2.8.1. Linking DT with IT Innovation

The adoption of digital transformation by commercial banks has spurred their innovative capabilities. As Zhao et al. (2024) illuminate, DT can enhance a firm's innovation capacity by reducing agency costs and increasing the risk-taking capacity of the respective firms. Furthermore, some studies have shown that DT in commercial banks may positively impact IT innovation

through data-driven approaches that advance innovation and the provision of new ideas that will enhance the development of embryonic IT solutions and services (Chen et al., 2024). Most importantly, Alharbi (2021) argues that DT improve the agility of commercial banks, and this in turn capacitates bank IT departments to experiment with new technologies, thereby ensuring fast innovation. This is hardly surprising, as this allows quick prototyping as well as an iterative development process.

DT's impact on innovation has also come through its ability to foster collaboration across different geographical locations and departments. According to Hokonya (2024), the success of DT at Standard Chartered Zimbabwe was due to improved collaboration between the local unit and global units that led to the creation of innovative IT solutions as diverse teams collaborated. Furthermore, it has been shown by nascent research that commercial banks implementing DT invest in state-of-the-art technologies (Jedynak et al., 2021; Kong & Masud, 2019), including but not limited to cloud computing, AI, chatbots and IoT. In turn, such investments positively influence IT innovation by providing the tools and infrastructure required to generate new solutions.

Support for the link between DT and IT innovation has come from recent research that has shown that DT does push for customer-centric innovations (Chamorro-Premuzic, 2024). This is because customers are now demanding efficient technologies that are user-friendly. Furthermore, DT results in streamlined business processes that result in reduced manual interventions (Bakri et al., 2024; Vedapradha & Hariharan, 2021). Consequently, IT teams are able to give more time to innovative projects as opposed to focusing on routine maintenance programs.

Overall, significant literature supports DT's positive influence on IT innovation (Chamorro-Premuzic, 2024; Hokonya, 2024; Zhao et al., 2024). This is because DT creates an

atmosphere that promotes the adoption of new technologies, which in turn spurs innovation. DT adoption by banks has improved their agility (Alharbi, 2021). Further, DT assists IT innovation by enabling collaboration between teams, pushing for customer-centric innovations and allowing the streamlining of business processes, which allows IT teams to focus on innovation (Bakri et al., 2024; Chamorro-Premuzic, 2024; Kong & Masud, 2019). While recognising the massive literature support above, the bulk of these studies were also done using different geographical contexts, and this raises concerns about generalising these results to the commercial banks in Zimbabwe. This study, therefore, recognises the need to address this gap by conducting the study using the Zimbabwean context.

2.9. IT Innovation and Commercial Bank Performance

This study sought to measure the effect of IT innovation on the performance of commercial banks in Zimbabwe. Consequently, this subsection discusses the link between these pertinent study variables.

2.9.1. *Linking IT Innovation to Commercial Bank Performance*

Empirical studies generally agree that IT innovation plays a significant role in improving the performance of commercial banks (Bakri et al., 2024). These results present no shock given that it allows banks to improve efficiency, enhance customer experience, improve financial performance, expand market reach and assist in achieving regulatory compliance (Vedapradha & Hariharan, 2021). A study by Makini (2024) in Kenya showed that commercial banks in Kenya that had adopted IT innovation strategies offered superior products such as internet banking, mobile banking and agency banking, which in turn improved their performance. Similarly, Resa et al. (2022) concluded that innovations such as ATMs, chatbots, and Internet banking obviate the need for physical branches by streamlining the operational process. The result is to reduce the costs

of delivering financial products to commercial bank customers, thus positively enhancing performance.

Customers play a key role in enhancing the financial performance of banks; thus, IT innovations that enhance customer experience will result in increased repeat business by customers. This, together with enhanced customer relationship management, impacts the performance of commercial banks (Resa et al., 2022). Several studies spanning many regions concluded that banks with a greater propensity to innovate respond better to customer requirements and can develop more and better capabilities, thus resulting in better performance (Lahiri & Das, 2024; Midhunde et al., 2023; Yang et al., 2021).

According to Midhunde et al. (2023), IT innovation substantially impacts the performance of commercial banks due to the attendant technological breakthroughs, such as the use of chatbots. This is expected given that IT innovation allows banks to expand their markets by reaching customers in remote areas, thereby growing their customer base. Similarly, Makini (2024) argues that IT innovation assists commercial banks' performance by allowing them to efficiently comply with regulatory requirements, thereby reducing non-compliance penalties.

In contrast, Enoruwa et al. (2023) did not find IT innovation positively impacting performance all the time, as this can either be positive or negative. Similarly, Maria and Pavlova (2024) argue that there is no significant positive influence of such innovations as AI on commercial bank Return on Assets (ROA) as well as Return on Equity (ROE). In support, Zhou (2023) opines that IT innovation does not necessarily lead to improved performance, as this may depend on context and implementation strategies. These results are quite surprising given that IT innovation enables banks to improve the portfolio of their technology-based products (Nyamekye et al., 2023). Indeed, several recent studies seem to indicate that IT innovation leads to better bank performance

due to improved customer experience, improved risk management for banks, expanded market boundaries and reduced compliance costs (Bakri et al., 2024; Lahiri & Das, 2024; Makini, 2024; Midhunde et al., 2023; Yang et al., 2021).

In summary, the impact of IT innovation on commercial bank performance is contested. While a significant number of studies show that IT innovation positively impacts commercial bank performance (Bakri et al., 2024; Lahiri & Das, 2024; Makini, 2024; Midhunde et al., 2023; Resa et al., 2022; Yang et al., 2021), some studies show no link between IT Innovation and commercial bank performance, while others see its impact as dependent upon implementation strategies (Enoruwa et al., 2023; Maria & Pavlova, 2024; Zhou, 2023). This study acknowledges this divergence in the literature, which suggests the need for further studies, thus making this research timely.

2.10. IT Capability and Commercial Bank Performance

The fifth objective of this research sought to examine the extent to which IT capability affects the performance of commercial banks in Zimbabwe. To achieve this objective, it is critical to review the literature associated with this theme. Resultantly, this subsection discusses the interconnection between IT capability and commercial bank performance.

2.10.1. Linking IT Capability to Commercial Bank Performance

In the rapidly evolving landscape of technology, digital transformation has emerged as a strategic imperative for organisations spanning diverse industries, including the banking sector. For Zimbabwean commercial banks, the effective execution of digital transformation initiatives stands as a crucial undertaking, one that determines their competitiveness and their ability to meet the evolving demands of their clientele (Phiri, 2020). This literature review embarks on an exploration of the pivotal role played by information technology (IT) capability in moulding the

outcomes of digital transformation endeavours undertaken by Zimbabwean commercial banks. The objective is to assess how an organisation's IT capability influences the triumphant realisation of commercial bank performance.

Organisations with strong IT capabilities tend to experience improved performance, including increased efficiency, productivity, and competitiveness (Ferraris et al., 2019). The importance of IT capability, as emphasised by notable studies (Ritter & Pedersen, 2020; Saunila, 2020), is evident across industries. These studies have shown that organisations with strong IT capabilities are more likely to achieve superior performance and maintain a competitive advantage. For example, Khan et al. (2023) discovered in their investigation that IT capability has a positive impact on innovation performance, which in turn positively impacts performance. Similarly, Joensuu-Salo et al. (2023) conclude that IT capability enhances performance and growth in small firms. This is expected given that IT confers the ability for a firm to perform better as it allows the organisation to get the knowledge required for such performance (Ma et al., 2021).

Nevertheless, not all studies agree that IT capability does have a positive influence on Organisational performance. For example, Pye et al. (2023) do not agree that IT capability solely leads to positive firm performance. Their studies concluded that IT capability can only impact performance in a positive way if the regulatory and market contexts allow it. This is because firms can only be rewarded for investing in IT infrastructure in a deregulated context. Similarly, Wang et al. (2022) agree that IT capability enhances performance under certain conditions, such as where there is value co-creation with customers. Furthermore, Benítez et al. (2022) illuminate that digital leadership is required if the IT capability is to help organisations improve their performance.

Moreover, strategic and cultural factors are seen to have a greater impact on firm performance (Nwankpa & Roumani, 2016). In contrast, earlier research by Kane et al. (2017)

showed that companies with superior IT capability were 26% more profitable than their peers. Furthermore, recent studies by Mogoale et al. (2021) find a strong association between IT capability and Organisational performance if these capabilities are properly aligned. Indeed, this divergence in the literature suggests that there is a need for further studies to establish how IT capability impacts performance.

In the banking sector, scant research by scholars like Ferraris et al. (2019) underscores the critical role of IT capability in achieving better performance. Banks with advanced IT capabilities are better positioned to implement innovative digital solutions, improve customer engagement, and enhance operational efficiency. While findings by Modiba et al. (2020) returned a positive influence of IT capability on bank performance in South Africa, the authors used a qualitative study approach, which is problematic when one looks at applying these findings to banks elsewhere, for example, in Zimbabwe, in this case. Furthermore, the impact of IT capability on the KPIs to be applied in this study was not clear in these studies, thus requiring further inquiry.

Previous studies, such as Arora and Rahman's (2017) study, found that IT capability does not give sustained competitive advantage and persistent profitability to firms in major emerging economies such as India. This study is in a developing country, and the impact of IT capabilities on commercial bank performance thus requires further investigation. That as it may, research by Wu et al. (2017) shows that stock markets value those companies with superior IT capability higher, and this indirectly enhances other performance indicators. In the context of banking services, nascent research such as Peng et al. (2022) indicates that IT capability allows the integration of supply and demand processes, which can directly impact performance.

Moreover, the few studies that considered digital transformation in the Zimbabwean context seldom considered the impact of IT capability on commercial bank performance. Kaondera

et al. (2023) sought to consider the relationship between DT and customer relationship management in Zimbabwean commercial banks without considering the impact of IT capability.

The impact of IT capability on commercial bank performance has not been clearly established in the literature. This is because some empirical research indicates a positive association (Joensuu-Salo et al., 2023; Khan et al., 2023), while others argue that IT capability only influences performance under certain conditions (Mogoale et al., 2021; Pye et al., 2023; Wang et al., 2022), while some authors dismiss the causal relation between IT capability and firm performance (Arora & Rahman, 2017). While these findings are informative for Zimbabwean commercial banks, local studies are essential for gaining insights into the specific challenges and opportunities faced by banks in the Zimbabwean context. These studies can provide actionable guidance for enhancing IT capability and maximising the chances of successful DT in the banking sector within Zimbabwe. This study thus recognises the need to address the conflicting views in the literature by carrying out further studies.

2.11. Employee Productivity and Commercial Bank Performance

This study's sixth objective sought to quantify the impact of employee productivity on the performance of commercial banks. This subsection thus discusses the link between these two study variables. This is achieved by considering the views provided in the extant literature.

2.11.1. Linking Employee Productivity to Commercial Bank Performance

The importance of employees has been highlighted in several studies. This is because the success of any organisation has been considered to hinge on how well the employees perform their tasks (Prajapat et al., 2023). This implies that organisations with employees who perform better than their rivals will achieve superior performance. In a study by Rahaman et al. (2023), it was

shown that employee productivity is vital in ensuring organisational success because they are responsible for serving customers and producing the company's products and services.

The importance of employee productivity is heightened in banking institutions, given that service is the primary source of competitive advantage. Similarly, Perumal and Aithal (2023) link the financial health of banking institutions to the performance of the respective employees. Several studies have been conducted to establish the impact of employee productivity on the performance of commercial banks (Jahan et al., 2020; Jena, 2022; Perumal & Aithal, 2023). Specifically, Jena (2022) argues that the profitability of banks is dependent on the performance of their employees. It has been observed that banks have complex procedures and processes that require employees who are qualified and knowledgeable (Rahaman et al., 2023). In such an environment, the productivity of employees becomes critical in ensuring that the bank achieves its intended objectives. Effective employee productivity in such an environment is likely to result in better and more effective risk management, which in turn enhances commercial bank performance (Mathapati, 2021).

The productivity of employees has been seen to contribute to a bank's operational efficiency. Studies by Rahaman et al. (2023) show that highly productive employees contribute to smoother operations as they refine work processes and make them more efficient. They further assert that good employee productivity assists banks in maintaining a good reputation in the market, thereby attracting more customers. This will enhance the financial performance of the institution. Similarly, Mathapati (2021) argues that employee productivity can drive higher sales for services and products in the bank's portfolio. The result is improved commercial bank performance.

Prior studies have pointed to employee productivity having a pronounced impact on commercial bank performance because it can improve customer satisfaction and the bank's innovative capacity. A study on DBS Bank in Singapore (Sia et al., 2021) concluded that customer satisfaction is achieved through excellent customer service. These customers are more likely to remain loyal, use the bank's products more often and recommend the bank's products to others. Resultantly, the performance of the bank is positively enhanced. Similarly, Perumal and Aithal (2023) assert that employee productivity is positively linked to commercial bank performance because engaged employees have a higher chance of contributing to innovative solutions for the bank. These innovations may help commercial banks achieve competitiveness and thus better performance.

While there is strong evidence in the literature supporting the suggestion that employee productivity plays an influential role in pushing the performance of commercial banks (Jahan et al., 2020; Jena, 2022; Mathapati, 2021; Prajapat et al., 2023; Perumal & Aithal, 2023), a gap still exist from most of these studies as they were carried out in geographical contexts different from this study. Furthermore, most used secondary data to establish this relationship. This study applies primary data, thereby adding to the existing knowledge. Furthermore, in line with Dodo (2022), this study uses primary data because this will assist in reflecting the actual environment at work as well as the experiences of the employees, something that is missing in most of the studies cited earlier.

2.12. The Mediating Role of IT Capability on the Relationship Between DT and Commercial Bank Performance

The question of whether IT capability mediates the relationship between DT and commercial bank performance and the extent thereof formed one of the key study objectives. As a result, the following subsection reviews nascent literature around this subject.

Multiple studies have sought to establish the mediating role of IT capability on the relationship between DT and Commercial Bank performance (Adam et al., 2021; Castillo-Vergara, 2021). A study by Mekuanint et al. (2024) shows that IT capability is essential in enhancing this observed relationship. Empirical studies have suggested that IT capability interacts directly with DT, and this has a consequential impact on organisational performance. For example, Valdez-Juárez and Castillo-Vergara (2021) noted that IT-capable organisations are better positioned to innovate and adapt to changing market conditions, leveraging emerging technologies for transformational change. Enhanced IT capabilities enable organisations to provide better customer experiences through digital channels and personalised services (Adam et al., 2021). According to Grover (2022), IT capability fosters organisational agility, enabling quicker responses to market shifts and disruptions. Studies in South Africa by Modiba et al. (2022) revealed that the success of DT implementation for South African banks, as measured by improved bank performance, hinges on IT capabilities.

Consequently, IT capability may be seen as the bridge that connects DT to commercial bank performance. This is because it assists commercial banks' DT journeys to achieve improved service and financial metrics (Yudha et al., 2024). Similarly, Barba-Sánchez et al. (2024) aver that IT capability enables banks to develop a digital orientation, and this reduces costs, thereby improving their performance. DT seeks to transform the way organisations operate by bringing the

company's business to digital platforms, and without a robust IT capability, such an objective may be difficult to achieve. Multiple authors (Mekuanint et al., 2024; Shanti et al., 2023) agree that IT capabilities foster a favourable environment for the implementation of DT, and without them, the impact of DT on bank performance will be difficult to measure. It has been shown by prior research that IT capability is crucial for translating commercial bank digital strategies into measurable and achievable outcomes (Mekuanint et al., 2024). This results in positive effects on DT, which in turn positively impact bank performance.

2.12.1. Strategies to Leverage IT Capability

To leverage IT capability for successful DT that results in enhanced commercial bank performance, it is essential to identify strategies that can enhance IT capability in Zimbabwean commercial banks. These strategies include investment in technology, workforce development, and alignment with business goals. Recent studies (Elia et al., 2021; Schrage et al., 2022) offer strategies for building and enhancing IT capability that influences the association between DT and commercial bank performance.

i. Investment in Technology

Zimbabwean banks can enhance their IT capability by investing in modernising their technical infrastructure. This includes upgrading hardware and software systems to ensure they are scalable, secure, and capable of supporting DT initiatives (Dethine et al., 2020). Banks can explore the adoption of emerging technologies such as cloud computing, artificial intelligence (AI), and blockchain to stay competitive. These technologies can enable innovative customer experiences, data analytics, and operational efficiency (Gurbaxani et al., 2019). Given the importance of data security in banking, enhancing cybersecurity capabilities is crucial. Investment in robust

cybersecurity solutions and practices can protect sensitive customer information and maintain trust (Elia et al., 2021). Effective IT capability, therefore, requires investment in the latest technology.

ii. Workforce Development

Zimbabwean banks should invest in training and development programs to equip their IT workforce with the skills necessary for DT (Brown et al., 2020). This includes cybersecurity training, data analytics skills, and expertise in emerging technologies. Attracting and retaining top IT talent is essential. Banks can establish partnerships with educational institutions to tap into local talent pools and create internship programs to groom future IT professionals (Scuotto et al., 2021). According to Nazeha et al. (2020), IT capability should extend beyond the IT department. Cross-functional training programs can help employees in other departments understand and leverage technology effectively in their roles. Banks with strong and developed digital skills often have an IT capability that can result in better commercial bank performance.

iii. Alignment of IT with Business Goals

Banks should ensure that IT strategies align with broader business goals and objectives. According to Singh et al. (2021), this can be done by regularly reviewing and updating IT strategies to stay in sync with changing business needs. Implementing robust IT governance practices can ensure that IT investments and projects are aligned with business priorities (Schrage et al., 2022). Rupeika-Apoga et al. (2022) noted that close coordination ensures that IT initiatives directly contribute to achieving the bank's strategic objectives. It is therefore fundamental to foster collaboration between IT teams and other business units.

iv. Continuous Improvement

IT capability enhancement is an ongoing process. Banks should adopt an iterative approach, regularly assessing their IT capability, identifying weaknesses, and implementing

improvements (Sousa-Zomer, 2020). A study by Correani et al. (2020) discovered that it is important to implement feedback mechanisms that allow employees and customers to provide input on digital initiatives. This feedback can inform adjustments and refinements to IT capability enhancement strategies.

2.12.2. The Mediating Role of IT Capability

Enhancing IT capability in Zimbabwean commercial banks is essential for successful DT, which will result in improved performance. Strategies that focus on technology investment, workforce development, alignment with business goals, learning from best practices, and continuous improvement are key to building the necessary IT capability. By following these strategies, banks can better position themselves to adapt to the evolving financial landscape and meet the demands of their customers in the digital age (AlNuaimi et al., 2022).

In essence, the role played by IT capability in the relationship between DT and commercial bank performance seems to be undisputed in the literature. Several recent studies have argued that IT capability amplifies the relationship between DT and commercial bank performance (Baloch et al., 2018; Ma et al., 2021; Qatawneh & Al-Okaily, 2024). Using data from 298 respondents in the innovative sector in China, Baloch et al. (2021) concluded that IT capability enhances organisational agility, which in turn improves performance in the context of DT. Similarly, Ma et al. (2021) applied structural equation modelling to conclude that IT capability influences the impact of DT on bank performance by utilising data from 241 firms. Similarly, Barba-Sánchez et al. (2024) affirm that IT capability amplifies the association between DT and performance. However, these studies were carried out in countries that are outside Africa and Zimbabwe specifically. Once again, a number of them used secondary data, suggesting the need to carry out more studies using a different population (commercial banks in Zimbabwe) as well as applying

primary data. Further research is therefore required to clarify the posited relationship within the Zimbabwean context.

2.13. Hypothesis Development

It has been observed in prior studies that hypotheses are a key integral part of quantitative studies (Jhangiani et al., 2019). This study, therefore, developed 8 study hypotheses. According to Barroga and Matanguihan (2022), hypothesis development allows quantitative studies to bring out hypotheses that are informed by current trends, thus aiding quantification of the problem at hand. As a result, this quantitative study's hypotheses are developed in the section below.

Previous studies have sought to examine the link between digital transformation and commercial bank performance. In their study of the impact of DT on the performance of Vietnamese commercial banks, Do et al. (2022) found a positive association between DT and commercial bank performance. This is attributed to the use of such technologies as machine learning and robotic process automation, among others. Empirical results from studies by Xie and Wang (2023) on the effect of DT on Chinese commercial banks' performance showed a positive association between DT and commercial banks' performance. The impact of DT on commercial bank performance has been attributed to its ability to spawn new financial services, thus enabling banks to be competitive (Cappa et al., 2020; Qiu et al., 2018). In addition, the use of digital technology in DT has led to reduced costs (Goldfarb & Tucker, 2019) and more efficient business models (Chen et al., 2021; Qi & Xiao, 2020). The link between DT and the output from commercial banks seems to be well established in the literature (Jiatong & Taeso, 2020). Consequently, this study hypothesises that:

- H1:** Digital transformation has a positive influence on the performance of Zimbabwean commercial banks.

The success of DT journeys has been attributed to the ability of organisations to influence the development of a strong IT capability. Recent studies have claimed that DT imposes profound strategic implications on IT capability by integrating advanced digital technologies such as AI, blockchain, cloud computing, and many more (Makovoz & Sergii Lysenko, 2024). In addition, DT has been seen to push executive management to align business with IT through the enhancement of IT capability. Recent studies have suggested that the COVID-19 pandemic saw several banks implementing DT, thus forcing them to improve their IT capability after experiencing a notable shift from branch visits to digital banking by customers (Kumar, 2024). To successfully implement DT, automation is very crucial, and this can only be achieved by mobilising a robust IT capacity. Studies by Madanayake and Yapa (2024) record that DT enhances IT capability in banks as it brings a new focus on technology and infuses digital product development. Similarly, Sia et al. (2021) observed in their study of the DBS Bank in Singapore that the implementation of DT saw an improvement in the IT backbone of the organisation. Given this evidence from the literature, it can thus be hypothesised that:

H2: Digital transformation has a positive influence on the IT capability of Zimbabwean commercial banks.

DT is a multifaceted concept that has been shown to impact performance across various sectors and within different contexts. This is the case in the manufacturing sector, service industry, and government (Ly, 2024; Gun et al., 2024; Widodo et al., 2024). There is evidence in the literature that DT enhances employee efficiency using Artificial Intelligence (AI) as well as Big Data Analytics. Studies seem to imply that these technologies automate routine tasks, foster a collaborative environment, and streamline standard operations, thus increasing productivity and job satisfaction (Almustafa et al., 2023; Afrin et al., 2023). Similarly, recent studies in the

commercial banking sector claim that the use of AI and other DT technologies helps with fraud detection, thus creating a secure and efficient working environment for employees (Adhikari et al., 2022). Overall, DT has been seen to assist commercial bank employees in leveraging advanced technologies for better decision-making and customer service, thus positively impacting their productivity (Indrasari & Pamuji, 2023). Accordingly, the study's first hypothesis claims that:

H3: Digital Transformation positively influences the productivity of employees of commercial banks in Zimbabwe.

The impact of DT on innovation has received attention in academia. This is because DT has the potential to significantly impact the IT innovation for banks, driving changes in their operations and customer interactions. Recent studies seem to suggest that DT pushes commercial banks to innovate due to shifting customer expectations and the need for efficient services across multiple digital channels (Alrawashedh & Shubita, 2024). DT, therefore, allows firms to come up with new ideas and practices, thereby spurring innovative initiatives within the operations of the business. Similarly, Alshammari (2023) asserts that the implementation of DT accelerates IT innovation in the financial service sector. This is because banks are compelled to adopt new technologies that are customer-centric and technologically advanced, such as chatbots, online portals, and mobile apps. This study, therefore, hypothesises that:

H4: Digital Transformation positively affects the level of IT innovation by commercial banks in Zimbabwe.

IT innovation in the context of commercial banks involves the integration and application of advanced information technology to improve the operations of the bank, thereby attaining a competitive advantage (Huang & Yang, 2019; Lahiri, 2022). It encompasses the use of data science, machine learning, and AI. It allows banks to flexibly respond to external conditions and

develop new products and processes, thereby impacting customer experience (Bakri et al, 2024). The impact of IT innovation on the performance of organisations has been noted in prior literature. Anecdotal evidence suggests that IT innovation has been used for survival and growth by commercial banks as it improves organisational efficiency, reduces costs, and streamlines processes, thereby improving bank performance (Bakri et al., 2024; Vedapradha & Hariharan, 2021). Further, it has been claimed in the literature through studies spanning different regions (Lahiri & Das, 2024; Midhunde et al., 2023; Yang et al., 2021) that banks with a greater propensity to innovate respond better to customer requirements and can develop more and better capabilities, thus resulting in better performance. This is expected given that IT innovation produces nuanced and unique market niches that may not be available to the competition. IT innovation has therefore been upheld as a way to achieve superior and sustained performance. This study, therefore, expects the following assertion to hold:

H5: IT innovation has a positive influence on the performance of Zimbabwean commercial banks.

The impact of IT capability on organisational performance has been explored in the literature, although there seems to be a paucity of studies specific to the commercial banking sector. IT capability has been described as the ability of a bank to use IT to enhance operations, improve customer service, and achieve strategic aims. Studies by Erkmen et al. (2020) concluded that IT capability positively influences performance by significantly contributing to firm efficiency. Mogoale et al. (2021) analysed the impact of IT capability on organisational performance in the mining sector and concluded that a positive association does exist between these variables. While some recent literature questions the positive impact of IT capability on performance (Nwankpa & Roumani, 2016), prior studies have shown that IT capability gives firms

the ability to differentiate products, enhance business processes, and create market niches, thereby enhancing competitiveness. Further, Bharadwaj (2000) is heavily referenced in the literature following the empirical studies that showed that companies possessing higher IT capability tended to outperform the competition. As Nwankpa and Roumani observe, firms with higher IT capabilities have a better capacity to organise and use IT and other resources to achieve superior performance. This is because IT capability goes beyond the accumulation of advanced technology, but the effective management and utilisation of such technology to drive success. Given the foregoing, this study hypothesises that:

H6: IT Capability positively influences the performance of Zimbabwe's commercial banks.

Wades of studies have considered the influence of employee productivity on overall organisational performance. Empirical evidence from Kumaran et al. (2023) on the Malaysian banking sector suggests a significant relationship between employee productivity and bank performance. This is because DT enhances the efficiency and effectiveness of employees. This, according to Shi et al. (2024), is due to the ability of employees to leverage digital tools to prop up productivity, thereby positively impacting bank performance. The positive impact of employee productivity on commercial bank performance in the context of DT is expected, given that it aids in fostering employee innovation, as well as putting at the disposal of bank employees advanced skills and tools to perform tasks proficiently, using such tools as AI and data analytics. The enhanced performance will contribute to the bank's success; thus, this study theorises that:

H7: Employee productivity positively affects commercial bank performance in Zimbabwe.

While recent studies have supported the notion that DT positively impacts commercial bank performance (Sia et al., 2021; Zuo et al., 2021), there is strong anecdotal evidence that IT capability positively mediates this relationship. IT capability is seen as an enabler of DT through the provision of the necessary tools and infrastructure. This supports the DT journey and enhances bank agility and competitiveness, which can lead to improved performance (Panda & Rath, 2021). IT capability is also considered a strategic resource, an innovation facilitator, an efficiency driver, and a customer experience enhancer. All these have been seen to have a favourable impact on bank performance, thus confirming the mediating role that IT capability plays in positively influencing the interplay between DT and commercial bank performance. As a result, the following hypothesis is expected to hold:

H8: IT capability positively mediates the relationship between DT and commercial bank performance in Zimbabwe.

2.14. Empirical Review

This section reviews prior empirical studies relevant to the hypothesised relationships in this study. Unlike the conceptual framework, which establishes theoretical linkages among variables, the empirical review synthesises findings from previous quantitative and qualitative investigations to highlight consistencies, contradictions, and research gaps that justify the current inquiry.

Boufounou et al. (2022) conducted an online survey of 97 customers and 118 employees from the National Bank of Greece, Piraeus Bank, Alpha Bank and Eurobank. They used a self-administered questionnaire with closed-ended questions and analysed their data using descriptive and inferential statistics. The results showed that employees expressed positive attitudes toward DT and that it improves performance. They highlighted the need for continuous digital training to

effectively achieve DT performance goals. The study utilised samples from only four major banks, and this is problematic as the results may not represent smaller or regional banks.

Zuo et al. (2021) examined the improvement in Chinese commercial banks brought about by implementing DT. The study applied the DEA-Malmquist productivity index and concluded that DT has a strong positive effect on bank profitability. Besides using secondary data alone, the use of the DEA-Malmquist productivity index is not adequate in establishing causality between variables. Furthermore, the study focused on Chinese banks alone, thereby limiting the generalisability of the results to developing countries such as Zimbabwe.

Kadur and Rajshekar (2022) assessed the impact of DT in Indian banks by combining both primary and secondary data. The study employed a cross-sectional survey using convenience sampling from 35 employees. The study results showed that there was increased work stress post the implementation of DT, thus negatively impacting commercial bank performance. This study's small non-random sample raises concerns as it limits the generalisability of these study results. Furthermore, it focused on two banks within a single district of the wider Indian commercial banking sector, thus limiting the generalisability of the results not only in India but in other jurisdictions such as Zimbabwe.

Nguyen-Viet and Nguyen (2023) studied the impact of DT on the performance of listed banks in Vietnam between 2015 and 2021. This study considered secondary data and concluded that DT does not always result in improved commercial bank performance. That as it may, the study did not use primary data, and it considered only listed banks, thus suggesting the need for further studies that apply a different approach and are also done in a different geographical context.

Kasteli et al. (2022) studied the mediation effects of IT capability on the performance of firms. The study was implemented using primary data, and the data was analysed using SEM. The

indirect path was confirmed to positively impact the relationship. Again, the fact that the study focused on a single country (Greece) may limit generalisability across other countries.

Suntano et al. (2024) studied the impact of DT on the performance of state-owned banks in Indonesia. This study used secondary data and concluded that there was no evidence of improved performance from implementing DT. That as it may, the study once again did not consider what impact IT capability has on the said relationship. In addition, the study was limited to state-owned banks, thus questioning the generalizability of the results from this study. Studies that utilise different approaches, therefore, seem timely.

By using a case study approach, Sia et al. (2021) studied DT implementation at DBS Bank in Singapore. The study applied in-depth interviews with key stakeholders as well as secondary data from internal documents, and they concluded that the bank improved all its operations and financial performance through DT. That as it may be, the use of a single case study approach and the reliance on internal documents may introduce bias and subjectivity, thus bringing into question the generalisation of these results.

Shanti et al. (2023) studied how DT influences profitability in banks operating under digital business models in Indonesia. The results indicated differences between short-term and long-term effects. The study used secondary data and analysed the same using the Autoregressive Distributed Lag (ARDL) model to examine both the short-term and long-term relationships. The study results showed a U-shaped relationship where DT negatively impacted performance in the short-term while it improved performance in the long term. IT capability improved the relationship in the long term. This study's weakness included the use of secondary data alone, a narrow sample size of only seven Indonesian digital banks. In addition, the ARDL results depend on stationarity and lag choices; model misspecification could affect the results.

Kaondera et al. (2023) examined the impact of DT in buttressing customer relationship management (CRM) by Zimbabwean commercial banks. The study utilised a quantitative approach and deployed a structured questionnaire to 348 respondents selected randomly. This study focused on CRM and did not consider the full spectrum of bank performance. While it implied that DT results in improved performance through improved customer loyalty and enhanced customer satisfaction, it did not consider the specifics of how DT over- or underplays commercial bank performance and more still, how IT capability interferes with this relationship. Furthermore, the study used only five of the thirteen banks in Zimbabwe, which may reduce broader applicability.

Through a qualitative inquiry, Hokonya (2024) studied DT and customer satisfaction using Standard Chartered Zimbabwe. The study used semi-structured interviews and concluded that DT improved performance through improved customer convenience, employee engagement and strategic support. Regardless, this single-case study means that there are challenges in generalising these findings, given that it also applied a qualitative approach and did not take into account how IT capability impacts the relationships as presented by the study variables.

Tran et al. (2022) assessed DT in Hungary using a case study of two banks. While the study concluded that human resources training and government policy were key factors in facilitating DT in banks, the study did not address the mediating role of IT capability. Furthermore, the study limited its scope to only two banks in Hungary and also used a qualitative approach, thus presenting challenges regarding the generalisation of these results.

By using secondary data, Chindudzi et al. (2020) examined the impact of digital banking activities on the financial performance of Zimbabwean commercial banks. The study applied random-effects regression and Pearson's correlation to test relationships between variables. The

study results showed mixed performance outcomes, thus suggesting the need for further inquiries. In addition, the study relied on secondary data alone, meaning there were no primary insights captured. Table 3 below summarises these studies, showing the countries, the design, study variables and key findings.

Table 3

Summary of Empirical Studies on DT and CBP and the Mediation of IT Capability

Author & Year	Country	Method/Design	Variables Studied	Key Findings
Boufounou et al. (2022)	Greece	Quantitative	DT→Performance	DT improves operational efficiency and customer service
Zuo et al. (2021)	China	SEM	DT → Performance	Strong positive effect on bank profitability
Kadur & Rajshekar (2022)	India	Survey	DT → Employee Productivity	DT increases stress; Performance declines
Nguyen-Viet & Nguyen (2023)	Vietnam	Panel Data	DT → ROA/ROE	Negative influence on financial performance
Kasteli et al. (2022)	EU	SEM	DT→ IT Capability → Performance	IT capability partially mediates the relationship
Sutanto et al. (2024)	Indonesia	SEM	DT→ IT Capability → Performance	No mediation: High IT costs weaken performance
Tran et al. (2022)	Hungary	Case Study	DT→ Performance	Strategic planning, employee productivity and regulation for DT to improve performance
Kaondera et al. (2023)	Zimbabwe	Quantitative	DT → Customer Relationship Management (CRM)	DT leads to enhanced CRM
Shanti et al. (2023)	Indonesia	Quantitative	DT→ IT Capability → Performance	IT capability reduces short-term profitability
Sia et al. (2021)	Singapore	Case Study	Digital Banking → Performance	DT positively improves performance
Chindudzi et al. (2020)	Zimbabwe	Survey	Digital Banking → Performance	Limited DT adoption; mixed performance outcomes

2.14.1. Evaluation and Critique of Literature Relevant to the Study

The empirical review above reveals a body of research full of conflicting findings on the impact of DT on CBP, heavily influenced by methodological choices and geographical context. A clear juxtaposition of these studies reveals a divide in outcomes: Studies in contexts like Greece, China and Singapore (Boufounou et al., 2022; Zuo et al., 2021; Sia et al., 2021) report strong positive effects on profitability and efficiency. In stark contrast, research from Vietnam, India and Indonesia (Nguyen-Viet & Nguyen, 2023; Kadur & Rajshekar, 2022; Suntano et al., 2024) return negative or insignificant effects, attributing them to increased employee stress, exorbitant implementation costs and organisational-specific challenges. This critical contradiction suggests the DT - CBP relationship may be mediated by contextual factors such as IT capability, as hinted by Kasteli et al. (2022) and Shanti et al. (2023).

A critical glance at the literature reveals that the studies are sharply contrasted in their methodology, and this directly impacts the nature of insights and limitations. While on one hand, quantitative analyses of secondary data (Zuo et al., 2021; Nguyen-Viet & Nguyen, 2023) provide broad macroeconomic perspectives on financial performance, they fail to establish causality or capture the organisational and human elements of DT, which are critical in the performance of commercial banks. On the other hand, qualitative case studies and small -scale surveys (Sia et al., 2021; Hokonya, 2024; Kadur & Rajshekar, 2022) offer rich contextual detail, but they suffer from severe limitations in generalisability due to their focused, non-random samples. Having compared and contrasted literature associated with this study, the following section exposes the limitations of these studies hence the need for carrying out further inquiry.

Empirical findings on the direct effect of DT on bank performance remain inconclusive. Positive effects have been reported in China, Vietnam, and Greece (Pham et al., 2022; Wu, 2024;

Boufounou et al., 2022), while other studies found insignificant or negative impacts due to high costs, organisational resistance, and contextual constraints (Nguyen-Viet & Nguyen, 2023; Suntano et al., 2024). In Zimbabwe, empirical evidence remains fragmented and narrowly focused on customer satisfaction and digital marketing (Kaondera et al., 2023; Hokonya, 2024), with limited attention to overall bank performance and enabling capabilities.

While Boufounou et al.'s (2022) study concluded a positive association between DT and commercial bank performance, they used only four banks in Greece, bringing into question the generalisability of their findings. This study surveyed all 13 banks in Zimbabwe, ensuring there is representation by applying stratified random sampling. In contrast, Nguyen-Viet and Nguyen (2023) studied the impact of DT on the performance of listed banks in Vietnam between 2015 and 2021 and concluded a negative association. The study's weakness stemmed from the fact that they concentrated on listed banks only, and they did not consider primary data. In addition, the study considered Greek banks only, and all these factors make it difficult to generalise the results in the Zimbabwean context. The current study used primary data from Zimbabwean banks to address these shortcomings.

Specifically, studies that have considered the impact of DT on the performance of commercial banks in Zimbabwe are scarce. Kaondera et al. (2023) examined the impact of DT on the CRM of banks, while Chindudzi et al.'s (2020) study was inconclusive. This study sought to measure the association between DT and CBP in the context of Zimbabwean commercial banks.

A growing body of empirical literature suggests that DT positively influences organisational IT capability by driving investments in digital infrastructure, IT skills, and system integration. Zhu and Jin (2023), using secondary data from Chinese banks, found that DT strengthened operational and technological capabilities, particularly during the COVID-19 period.

Similarly, Wu (2024) reported that DT enhanced IT-enabled competitiveness among listed Chinese commercial banks. Nevertheless, these studies largely relied on archival data and did not capture employees' perceptions of IT capability development. Furthermore, the majority were conducted in Asian contexts, raising questions about applicability in developing economies such as Zimbabwe. The absence of primary, employee-level data and contextual diversity necessitates further empirical investigation. This study applied primary data in the Zimbabwean context.

Empirical evidence on the relationship between digital transformation (DT) and employee productivity in the banking sector remains mixed. Several studies have demonstrated that DT enhances employee productivity, efficiency, and task completion through automation, digital tools, and improved information access (Sia et al., 2021; Zuo et al., 2021). In a qualitative case study of DBS Bank in Singapore, Sia et al. (2021) found that DT significantly improved employee engagement and operational efficiency. However, other studies caution that DT may negatively affect employee productivity due to increased work pressure, skill mismatches, and resistance to technological change (Nguyen-Viet & Nguyen, 2023; Tran et al., 2023). Importantly, most of these studies relied on secondary data or single-case qualitative approaches, limiting the ability to generalise findings or capture employee perceptions directly. Moreover, empirical studies examining this relationship in African banking contexts remain scarce, creating a clear gap that the current study addresses.

Empirical studies generally support a positive association between DT and IT innovation in commercial banks. Pham et al. (2022), analysing Vietnamese banks using secondary data, concluded that DT facilitates technological innovation, although benefits varied by bank size. Similarly, Chen et al. (2024) found that DT improved innovation outcomes among Chinese commercial banks, but with heterogeneous effects. Despite these findings, most studies did not

explicitly examine how IT capability enables or constrains IT innovation, nor did they incorporate employee-level perspectives. This omission limits understanding of the mechanisms through which DT translates into innovation outcomes, particularly in resource-constrained environments.

Several empirical investigations have established a positive relationship between IT innovation and bank performance. Zuo et al. (2021) found that innovative digital products and processes improved financial development and competitiveness among Chinese banks. Boufounou et al. (2022), using a mixed-methods approach in Greece, reported that IT innovation enhanced service delivery and operational efficiency. However, many studies focused on customer outcomes or financial indicators while neglecting organisational and employee-driven performance dimensions. In addition, limited empirical work has examined this relationship in African banking systems, highlighting a contextual research gap.

Empirical evidence on the influence of IT capability on bank performance is inconsistent. Some studies demonstrate that strong IT capability enhances operational efficiency and strategic agility, thereby improving performance (Wu, 2024; Zhu & Jin, 2023). Conversely, Suntano et al. (2024), studying Indonesian state-owned banks, found no significant performance improvements attributable to DT, suggesting that IT capability alone may be insufficient without complementary organisational factors. These contradictions suggest that IT capability may play a more complex role, potentially acting as a mediator rather than a direct driver of performance, an issue explicitly examined in the current study.

Although fewer studies directly address the relationship between employee productivity and bank performance, available evidence suggests a positive association. Case-based and qualitative studies indicate that improved employee productivity and digital competence contribute to enhanced service quality and organisational outcomes (Sia et al., 2021; Hokonya, 2024).

However, most studies do not quantitatively model this relationship within broader DT frameworks, leaving its empirical strength underexplored.

Only a limited number of empirical studies have explicitly tested the mediating role of IT capability in the DT-performance relationship. While some research suggests that IT capability strengthens DT outcomes (Chen et al., 2024), others report weak or insignificant mediation effects, particularly in developing economies (Suntano et al., 2024). Notably, none of the reviewed studies comprehensively model IT capability as a mediator while simultaneously accounting for employee productivity and IT innovation using primary data. This gap directly motivates the current study's research design.

2.14.2. Research Gaps

Unlike the preceding conceptual framework, which establishes theoretical relationships, this section synthesises findings from prior empirical research across different contexts, highlighting consistencies, contradictions, and gaps that justify the present study.

A review of global empirical studies reveals inconsistent findings regarding the impact of DT on commercial bank performance. Studies in Europe and Asia report significant positive effects (Boufounou et al., 2022; Zuo et al., 2021), whereas research in developing countries highlights negative or insignificant impacts driven by organisational resistance, cost pressures and technological barriers (Kadur & Rajshekar, 2022; Reis & Melao, 2023; Tran et al., 2023). Furthermore, while some studies confirm that IT capability mediates or strengthens DT outcomes (Kasteli et al., 2022; Yang et al., 2023), others argue that high IT investment costs weaken performance in the short term (Sutanto et al., 2024; Shanti et al., 2023). This mixed evidence demonstrates the need for context-specific investigations, especially within volatile environments such as Zimbabwe's banking sector.

Predominantly, studies on DT and commercial bank performance have largely employed qualitative approaches or secondary data analysis and have been concentrated in Asian and European contexts, with limited representation from Africa. From carrying out the empirical review above, the following gaps stood out.

i. Quantitative Studies Using Secondary Data

A glance at the empirical literature reveals that a cluster of studies employed panel data from commercial financial statements. Furthermore, most of these studies were primarily carried out in East Asia. Several authors (Chen et al., 2024; Nguyen-Viet & Nguyen, 2023; Pham et al., 2022; Wu, 2024) collectively investigated Chinese and Vietnamese banks. They converge on applying similar metrics to measure DT. That as it may, their findings are contradictory: most conclude a positive DT-commercial bank performance link (Pham et al., 2022; Wu, 2024), while others find no such evidence (Suntano et al., 2024) or a non-uniform impact (Nguyen-Viet & Nguyen, 2023). This inconsistency suggests that context and other factors could be at play, thus necessitating further inquiry.

A central limitation exhibited by all these studies was their reliance on secondary data. This means that these studies failed to capture organisational nuances related to DT and CBP, considering the mediation of IT capability. Furthermore, these studies' focus is almost exclusively on listed or large commercial banks in China and Vietnam, severely limiting geographical and institutional generalizability. It is important to note that these studies intersect in omitting the mediating role of IT capability. The challenge in this case is the assumption that DT only directly influences CBP without considering how a mediator may orchestrate this relationship, as espoused by the DOF.

ii. **Qualitative and Case Study Approaches**

The literature is awash with studies that utilised qualitative and case study approaches to study the relationship between DT and CBP. While several scholars (Hokonya, 2024; Sia et al., 2021; Tran et al., 2022) have conducted single or dual case studies (for example, DBS Singapore, Hungarian banks, Standard Chartered Zimbabwe). While these studies are valuable for theoretical insight, their generalisability is inherently limited due to their narrow context-specific samples. The risk of bias was exacerbated by the use of internal documents and executive interviews. Like the quantitative studies above, they also ignored the mediating role of IT capability, focusing instead on descriptive narratives.

iii. **Mixed-Methods and Primary Data Studies**

Some studies (Boufounou et al., 2022; Kaondera et al., 2023) employed the mixed methods study approach. Although this was methodologically stronger in capturing lived experiences, the studies had their observed weaknesses. Kaondera's study focused on customer relationship management and DT. Crucially, neither study incorporated nor measured the mediation of IT capability on the DT-commercial bank performance relationship.

2.14.3. Summary of Identified Gaps

Overall, the empirical literature reveals four key gaps. First, findings on the DT-performance relationship remain inconsistent. Second, most studies rely heavily on secondary data or qualitative case studies, limiting generalisability. Third, the mediating role of IT capability is under-examined. Fourth, African and Zimbabwean banking contexts are largely absent from empirical inquiry. To address these gaps, the current study employs a quantitative approach using primary data to examine the direct and mediated effects of DT on commercial bank performance in Zimbabwe. Below is a summary of the main gaps identified in the literature.

Geographical Bias: The literature is dominated by studies from Asia (China, Vietnam, Singapore, Indonesia) as well as Europe (for example, Greece and Hungary). The paucity of studies focusing on Africa and the Zimbabwean commercial banking sector is concerning. This is because contextual matters such as infrastructure and regulation, among others, differ substantially.

Methodological Limitations: The studies seem to over-rely on the use of secondary data as well as single case studies. This means these studies did not capture certain process dynamics that require the use of primary data. It appears that very few studies applied comprehensive, survey-based primary data targeted at bank professionals. In addition, the literature is awash with qualitative and case study approaches. Notably, few studies have adopted a mixed-sources approach that combines primary survey data with objective secondary financial data to measure the extent to which DT affects the performance of commercial banks as well as the extent to which IT capability interplays with this relationship. This study addresses this gap by triangulating perceptual performance measures from employees with actual ROA data from commercial bank financial statements, thus aiding a more robust and validated assessment of the DT-CBP relationship.

Theoretical Oversight: Most reviewed studies ignored the mediating role of IT capability, preferring instead to examine the direct DT-commercial bank performance link. This ignored the theorised claim that the efficacy of the relationship may depend on an organisation's ability to employ IT capability to improve the interplay between these variables.

Inconsistent Findings: The empirical results are mixed. DT is linked to both positive and negative outcomes. This heterogeneity underscores the need for inquiry that introduces IT

capability as a mediating variable so as to measure the extent to which this construct improves or negates the interplay between the given variables.

Overall, while the nascent literature establishes the significance of DT, it calls for studies that: (i) investigate the Zimbabwean context, (ii) employ robust primary data collection, (iii) explicitly model and test IT capability as a critical mediator, and (iv) use a methodological approach that allows for broader generalisation. This study sought to address these interconnected gaps by carrying out a quantitative study in the Zimbabwean context. The study utilised primary data, which is something that is rare in the reviewed literature. Furthermore, it considered the mediation of IT capability to address the observed gap, where there is a paucity of studies that have deliberately investigated this in the context of commercial banking. The contextualisation of the study to the Zimbabwean environment addresses the Asian and European heavy literature.

2.15. Chapter Summary

Digital transformation's impact on the performance of organisations has been considered an important field of interest by academics and practitioners alike (Egodawele et al., 2022; Tran et al., 2023). This has become heightened in the banking sector (Jihane & Aziz, 2022; Tran et al., 2022) due to the need for banks to enhance their performance in the face of both endogenous and exogenous factors. This study sought to establish the impact of DT on the performance of commercial banks in Zimbabwe, considering the mediating role of IT capability. As a result, the literature review considered the study's theoretical framework, the conceptual framework, as well as reviewed the literature surrounding the study's objectives and variables.

Concerning the theoretical framework, the chapter used the dynamic capabilities theory, the Technology Acceptance Model and the Digital Orchestra Model in line with previous studies (Blokland & Reniers, 2021; Duerr et al., 2018; Hashem, 2020; Leso et al., 2023; Nousopoulou et

al., 2022; Vial, 2019). These studies were used as they were seen to support the posited relationships between the study variables. The chapter developed the study hypotheses through literature support, which indicated that DT influences employee productivity, IT capability, IT innovation and commercial bank performance (Adhikari et al., 2022; Alshammari, 2023; Chen et al., 2021; Sia et al., 2021). In addition, the variables of employee productivity, IT capability, and IT innovation were shown to influence commercial bank performance (Erkmen et al., 2020; Midhunde et al., 2023; Shi et al., 2024). The hypothesis was also developed, showing the mediation impact of IT capability on the association between DT and commercial bank performance (Panda & Rath, 2021). This hypothesis development culminated in the construction of the study's conceptual framework, showing the hypothesised relationships.

The chapter discussed the evolution of DT, showing that while there is no consensus regarding when the concept began (Schallmo et al., 2018; Verhoef et al., 2021), the concept has gained pace in recent years (Abuhasan & Moreb, 202). The section further puts the research in context by discussing the status of DT in Zimbabwean commercial banks. It was seen that the implementation of DT in Zimbabwe was slow (Kaondera et al., 2023) despite the country having a strong digital backbone (Kunicova et al., 2021) and a supportive regulatory environment (Furusa et al., 2022). In addition, the IT capability of banks in Zimbabwe was seen to be under strain due to poor IT infrastructure and related capabilities (Mataruka et al., 2023) as well as high technology costs (Masinire, 2023). It was illuminated in this chapter that several studies done in the Zimbabwean context were skewed toward other industries, thus suggesting the need for further studies (Gondo & Suwaryono, 2024; Mataruka & Muzurura, 2023; Maphosa, 2023).

To obtain a better understanding of DT, the chapter discussed the various aspects surrounding DT by separating it from digitisation and digitalisation, as these are often confused to

mean the same (Nwaiwu, 2018). This culminated in the definition of DT, which is yet to find consensus in the literature when it comes to its definition (Gong & Ribiere, 2020; Papathomas & Konteos, 2023). The review contextualised the definition of DT as the exploitation of digital technologies by commercial banks to build new digital banking models, achieve automated processes, improve stakeholder experience, and develop innovative digital products that result in financial inclusion, better performance, and operational efficiency (Gong & Ribiere, 2020; Khams, 2022). Implementation of DT is not sufficient on its own, but it must be successful. This chapter showed that successful DT involves improving organisational value, having functional teams, and progressive change management (McKinsey & Company, 2021), gaining market share through customer satisfaction (Chen & Huang, 2019), and achieving sustained competitive advantage (Sia et al., 2021).

Organisations have been jolted into implementing DT owing to several factors that have been identified as DT's driving forces (Osmundsen et al., 2018). These forces include threats from competition (Wade et al., 2019; Salume et al., 2022), globalisation (Verhoef et al., 2021), although some dispute this (Diener & Spacek, 2021), the need for customer satisfaction (Hashem, 2020; Jihane & Aziz, 2022), as well as performance-related factors (Diener & Špaček, 2021; Kraus et al., 2021; Pramanik et al., 2019).

This chapter reviewed the factors that will result in DT journeys for banks to be successful. The most highlighted success factors in the literature include digital culture, vision, digital drivers, learning and development, risk appetite, IT capability and change management (Cichosz, 2020; Leso et al., 2023; Martínez-Caro et al., 2020; Morakanyane et al., 2020; Nguyen, 2020; Tuukkanen et al., 2022; Weber, 2022). If DT is to be effective in achieving improved performance in commercial banks, then bank management needs to consider these factors.

Several models to achieve DT were discussed in this chapter. For banks to achieve digital maturity, which is important for performance, several models have been proposed. These include the Paths to DT model (Berman, 2012), the DT Journey model (Aras & Büyüközkan, 2023), the Holistic Maturity model (Aras & Büyüközkan, 2023), and the Digital Transformation Lifecycle model (Papathomas & Konteos, 2023). These models indicated that organisations need to follow specific steps to achieve success in DT. In addition, it was indicated in this chapter that DT is not without challenges, especially in the Zimbabwean environment (Majukwa et al., 2020; Mhlanga et al., 2023). These challenges include regulatory constraints, an unstable economy, legacy systems, and talent and skills gaps (Cichosz et al., 2020; Cueto et al., 2022; Mullan & Rolleston, 2020).

This chapter considered the key variables as guided by the study's conceptual framework and study objectives. It discussed the link between DT and employee productivity. While recent research showed an association between DT and employee productivity due to its ability to enhance employee productivity (Shwedehe et al., 2020; Khadragey et al., 2022; Ridwan et al., 2020), the methodological approach as well as the regional context provided gaps for further inquiry. The impact of DT on IT capability was also explored. It was argued that several studies show that DT influences the IT Capability of organisations (Sia et al., 2021). This is because DT improves the IT infrastructure of firms as well as the application of modern technologies such as AI, cloud computing and the IoT (Barba-Sánchez et al., 2024). An analysis of this construct returned methodological gaps, given that several studies applied a case study and qualitative approaches (Madanayake & Yapa, 2024; Makovoz & Sergii Lysenko, 2024; Porfirio et al., 2024; Sia et al., 2021).

The issues surrounding the key objective on the impact of DT on IT innovation were covered in this section. Prior studies argued that DT spurs the IT innovation of firms (Zhao et al., 2024). This is because it is seen to encourage the development of new IT solutions and state-of-the-art technologies, as well as make banks more agile and foster cross-functional and regional collaboration (Alharbi, 2021; Chen et al., 2024; Jedynek et al., 2021; Hokonya, 2024).

Considering the centrality of organisational performance in the study, this chapter explores the concept in detail. It was seen from the literature that some studies erroneously equate organisational performance with profitability (Huang 2021; Kriebel & Debener, 2019). For this study, organisational performance was taken to mean the achievement of set goals (Bandono & Nugroho, 2023; Doval, 2019). While several ways to measure performance were explored, the study settled on measuring it using both quantitative and qualitative measures (Mbama & Ezepec, 2018; Nazneen et al., 2019).

This chapter discussed the link between several of the study variables with commercial bank performance. Various studies conclude that IT innovation positively influences commercial bank performance (Bakri et al., 2024; Makini, 2024; Resa et al., 2022). This is because it allows banks to reach more customers, brings in more technological breakthroughs as well and assists with regulatory compliance. It was, however, shown in the discussion that some studies dispute the positive impact of IT innovation on DT. Instead, its impact is context-dependent and may not even impact ROA or ROE (Maria & Pavlova, 2024; Zhou, 2023). This divergence in the literature provided a gap that this study seeks to address.

The direct link between IT capability and commercial bank performance was also explored in this chapter. The results of recent studies produced mixed results. While some empirical studies associated IT capability with better bank performance (Joensuu-Salo et al., 2023; Khan et al., 2023;

Modiba et al., 2020), others found that it only has a positive impact under specific conditions (Mogoale et al., 2021; Pye et al., 2023; Wang et al., 2022). Arora & Rahman (2017) dismissed this causal relationship. Again, these conflicting views suggest that there is a need for further studies.

The link between employee productivity and commercial bank performance formed part of the conceptual framework. It was shown that organisations with employees whose performance surpasses that of the competition will achieve better performance (Prajapat et al., 2023). The impact of commercial bank employees' performance on their performance because it can aid the innovative capacity of the institution, the provision of excellent customer service and engaged employees can drive higher sales (Mathapati, 2021; Perumal & Aithal, 2023; Sia et al., 2021). The observable gap in most of these studies was that they used secondary data.

This chapter considered the mediating role of IT capability on the relationship between DT and commercial bank performance. It was shown that most studies tend to support the notion that IT capability amplifies the impact of DT on commercial bank performance (Baloch et al., 2018; Ma et al., 2021; Qatawneh & Al-Okaily, 2024). This is because it has been accredited with assisting commercial banks to attain a digital orientation, and this reduces costs and improves service and consequently performance (Barba-Sánchez et al., 2024). IT capability has been considered to interact with DT, which in turn has a consequential impact on bank performance. Furthermore, IT capability is seen as enabling banks to come on digital platforms, and it fosters a favourable environment for the implementation of DT (Mekuanint et al., 2024; Shanti et al., 2023). The literature review established that for their IT capability to be effective in enhancing commercial bank performance, they need to invest in the latest technology, develop their workforce and align their IT with organisational goals (Brown et al., 2020; Dethine et al., 2020; Singh et al., 2021).

Most of these studies were done in other countries and applied secondary data, thus affirming the need to conduct further studies on the Zimbabwean context and apply primary data.

From a global perspective, several studies have shown that DT plays a significant role in impacting commercial bank performance (Diener & Špaček, 2021; Kitsios et al., 2021; Xie & Wang, 2023). This is because it allows banks to optimise their operations, improve overall efficiency, leverage the latest technologies, improve employee efficiency and effectiveness and improve customer experience (Abuhasan & Moreb, 2021; Brown & Grant, 2020). On the other hand, some other studies have disputed the efficacy of DT in positively influencing the performance of commercial banks. This is because of the intricacies associated with DT implementation (Diener & Špaček, 2021; Sia et al., 2021) and employee resistance to change (Reis & Melao, 2023). That as it may, some studies have shown that DT will successfully impact commercial bank performance if it encompasses customer-centricity and makes use of AI, RPA, Big Data Analysis, and the IoT (Aslekar, 2022; Giebe et al., 2023; Huang, 2023; Pardo-Jaramillo et al., 2020; Sousa et al., 2021).

On the other hand, some studies dispute the effectiveness of these variables in enhancing the ability of DT to positively impact commercial bank performance. This is because relationships between banks and customers have become more automated (Suresh, 2021), therefore reducing the need for customer centricity. Other studies did not find a positive impact of AI and BDA (Muhammad, 2022; Murwaningsari, 2021). These conflicts in the literature affirm that there is a need for further investigations into the relationship between DT and commercial bank performance.

An empirical analysis of the literature surrounding the impact of DT on commercial bank performance, considering the mediation of IT capability, was carried out. It was shown that several

studies have confirmed that DT improves commercial bank performance (Chen et al., 2024; Nguyen-Viet and Nguyen, 2023; Zhu & Jin, 2023). However, most of these studies were limited in scope as they considered specific geographical contexts different from Zimbabwe. In addition, they did not consider how IT capability impacts the said relationship. The empirical review revealed that there was no agreement in the literature regarding how DT influences the performance of commercial banks (Nguyen-Viet & Nguyen, 2023; Pham et al., 2022; Suntano et al., 2024; Wu, 2024). The need for different methodological approaches to study this phenomenon resulted from the empirical review showing that most studies used a single-case approach, while many applied a qualitative approach, and those that applied a quantitative approach used secondary data (Hokonya, 2024; Pham et al., 2022; Zhu & Jin, 2023).

The reviewed empirical studies reveal mixed findings on the impact of digital transformation on commercial bank performance, particularly regarding the roles of employee productivity, IT capability, and IT innovation. These inconsistencies, together with limited evidence from Zimbabwe, underscore the need for the conceptual framework proposed in this study and the empirical testing undertaken in subsequent chapters. This study contributes to the literature by employing a mixed-sources approach that triangulates primary survey data with objective secondary financial data (ROA), thereby addressing methodological gaps identified in prior research. Having provided the requisite literature review around the study topic, Chapter 3 presents the methodology that was used to investigate this study's conceptual framework.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. Chapter Overview

Digital Transformation (DT) within the commercial banking sphere is perceived as the utilisation of digital technologies by these institutions to create novel digital banking structures, streamline processes through automation, enhance stakeholder satisfaction, and innovate digital products, leading to financial inclusivity, heightened performance, and operational effectiveness, ultimately elevating customer value (Khams, 2022). This study, therefore, sought to examine the influence of DT on the performance of commercial banks, considering the mediating role of IT capability. This chapter discusses and clarifies the methodology used to achieve this study objective. According to Swarooprani (2022), a clear methodology is crucial in a study because it helps achieve study objectives systematically, provides data collection and interpretation frameworks, and contributes to the reliability and validity of the study results. Consequently, this chapter outlines the research approach used to realise the study objectives. However, to provide clarity and context for the methods applied in the study, it is essential to start by restating the problem and purpose statements. In addition, this ensures a tailored methodology that effectively examines the identified problem and thus achieves the desired results (Sternberg, 1981; Viviane & Robinson, 2014). The problem and purpose statements of this study are therefore restated below.

The problem is that, whereas there has been significant interest and studies that considered how DT influences the performance of commercial banks, the literature does not converge on the outcome, as there have not been consistent results. A considerable number of studies have returned some positive effects of DT on performance (Boufounou et al., 2022; Sia et al., 2021; Zuo et al., 2021). Again, evidence from studies carried out by Wu and Cheng (2024) on Chinese commercial banks suggested that DT enhances competitiveness and, hence, performance. In contrast, other

studies seem to suggest that the impact of DT on performance is affected by several challenges, such as cybersecurity-related issues, organisational change challenges, employee resistance, and the need for heavy investments in DT journeys (Bausch et al., 2024; Reis & Melao, 2023; Tran et al., 2023) thus resulting in a negative impact on performance. A study of DT in the Indian banking sector demonstrated that the process may result in negative performance due to the stress that it induces on employees (Kadur & Rajshekar, 2022). Similarly, studies on Vietnamese commercial banks revealed that DT may have a negative impact on the return on assets and the return on equity (Nguyen-Viet & Nguyen, 2023). These conflicting results are quite problematic and suggest the need for further enquiries.

Furthermore, despite some recent studies (Kasteli et al., 2022; Yang et al., 2023) claiming that IT capability plays an important role in shaping the relationship between DT and organisational performance, there seems to be a paucity of studies focusing on commercial banks. In addition, how IT capability impacts the connection between DT and the performance of commercial banks remains underexplored in the literature, making this study timely in assessing the impact of the study's independent and dependent variables. Prior studies provide evidence that several banks have struggled to implement and leverage DT, resulting in 30% of such initiatives failing due to framework-related challenges (Diener & Špaček, 2021; Sia et al., 2021). The desired positive impact on performance is therefore not realised. However, these studies do not highlight the interplay between DT, commercial bank performance, and IT capability, and that is concerning. Could it be that if commercial banks leverage IT capability, then this would improve the relationship linking DT to commercial bank performance? While claims abound in the literature on the positive impact of DT on performance in general (Cappa et al., 2020; Goldfarb & Tucker, 2019; Wang, 2023), it appears little effort has been put into establishing whether DT positively

impacts employee productivity and hence performance (Maha et al., 2024; Widodo et al., 2024). Similarly, its interplay with IT Innovation in improving commercial bank performance remains vague (Nahed et al., 2024; Rizwana et al., 2024), and that is quite problematic.

The problem for this study is also framed in the context that several inquiries dominating the literature were done in jurisdictions with different operating challenges compared to Zimbabwe, such as Asia, Europe and the United States of America (Cappa et al., 2020; Goldfarb & Tucker, 2019; Xie & Wang, 2023). Specifically, commercial banks in Zimbabwe have been facing incessant threats from Fintechs and MNOs, resulting in a significant reduction in market share and a significant dent in performance (Kaondera et al., 2023; Khams, 2022; Tran et al., 2022; Wewege et al., 2020).

In addition, these banks have been saddled with significant levels of non-performing loans, hitting a high of 7%. This was exacerbated by structural problems in the Zimbabwean banking sector, where 76% of the market share is shared among the top three banks (Katuka et al., 2023), further constraining the ability of several other banks to sustain their performance. Because studies carried out in other jurisdictions (Boufounou et al., 2022; Zuo et al., 2021) have suggested DT as mediated by IT capabilities as a solution that results in a sustained performance of commercial banks, it is worth investigating this relationship in the context of Zimbabwean commercial banks. It is not known how IT capability mediates the interconnection between DT and the performance of commercial banks in Zimbabwe. This is because the limited studies done on DT in the sector in the country tended to focus on other areas, such as digital marketing and digital banking, as well as DT and customer satisfaction (Chinakidzwa, 2020; Chindudzi et al., 2020; Hokonya, 2024). Mazikana (2023) considered the impact of DT on the performance of Non-Governmental

Organisations (NGOs). Mawere (2018) studied DT from the perspective of determining the opportunities and challenges brought by DT.

Overall, while it seems the bulk of the literature acknowledges the positive effects of DT on performance, there are critical gaps about the jurisdiction of study, methodological approaches, and a paucity of literature to allow for the specific quantification of how a commercial bank's IT capability mediates the relationship between DT initiatives and performance of Zimbabwean commercial banks.

The purpose of this quantitative study is to examine the impact of digital transformation on the performance of commercial banks in Zimbabwe while considering the mediating role of the IT capabilities of the said banks. Zimbabwean commercial banks' interest in DT has been growing in recent decades to enhance performance amid a plethora of challenges. It is against this backdrop that a closer investigation of the interplay between DT, IT capability, and commercial bank performance provides strategic insights for commercial banks, and the quantification of the relationships is informative, thereby allowing commercial banks to leverage IT capabilities to enhance the success of their DT journeys.

This study was supported by an explanatory study design that employed a cross-sectional survey and was conducted through the lenses of the Technology Acceptance Model (TAM) and the Dynamic Capabilities theory. Taking these theories into account, the study intends to investigate the connection between DT and the dependent variables, including employee productivity, IT innovation, and commercial bank performance, while considering the mediating effects of IT capability on the relationship between DT and commercial bank performance in Zimbabwe.

This study was based on data acquired from all thirteen commercial banks in Zimbabwe, and the sample size was determined using Krejcie and Morgan's (1970) table (KMT), which gives 364 respondents from an estimated total of 6322 commercial bank employees in Zimbabwe. The use of the KMT in this study was informed by various reasons. Firstly, the method has been widely applied in similar quantitative studies due to its simplicity in application (Alrawashedh & Shubita, 2024; Asamoah et al., 2024). Secondly, the table has passed the reliability test and is versatile as it can be applied in several fields, including the commercial banking sector. This contrasts with other methods, such as Cochran's complex formula, which requires extensive input parameters and calculations (Bartlett et al., 2001). The approach was triangulated with Power analysis, which has been hailed as robust, especially in studies that require hypothesis testing (Schmidt & Hollestein, 2018). This study tested several hypotheses, thereby justifying the use of these approaches.

Selection of the participants was based on a random sampling technique. Only primary data was used in this study, and the study tool that was used to collect data was a structured questionnaire with questions that were organised to address the study objectives and purpose.

3.2. Research Philosophy

Research philosophy refers to the set of beliefs, assumptions, and principles that guide how a study is designed, conducted, and interpreted (Yam, 2022). It reflects the researcher's worldview and influences the selection of methods, data collection procedures and the analytical techniques used (Mentarang, 2023). According to Saunders et al. (2012), four major research paradigms are commonly applied in social science research: pragmatism, realism, interpretivism and positivism (see Appendix A).

Pragmatism challenges the notion of a single, fixed reality and emphasises practical solutions over theoretical purity. It recognises multiple perspectives and typically aligns with mixed-methods research that integrates both qualitative and quantitative approaches (Chilisa & Kawulich, 2011; Islam, 2022; McBeath, 2023). For instance, Schmid and Pscherer (2021) applied a pragmatist stance in their mixed-methods study on digital transformation in human resources. Since the current study is purely quantitative and driven by theoretical testing, pragmatism is unsuitable.

Realism posits that reality exists independently of human perception and is often associated with studies involving observation or experimental designs (Huang, 2022). Phadraig et al. (2023) note that realism is rarely used in quantitative surveys of organisational phenomena. Given that this study does not involve experimental manipulation or direct observation, realism is not an appropriate philosophical foundation. Interpretivism focuses on understanding social phenomena through the meanings that individuals assign to them. Although some authors associate interpretivism exclusively with qualitative studies, others argue that it may be used in quantitative research depending on the research focus (Azam, 2022; Matarazzo et al., 2021). However, interpretivism is most suitable for studies seeking to explore lived experiences, meanings or subjective interpretations, none of which constitute the aims of the present investigation.

Because this study seeks to test theoretical relationships using measurable variables, it aligns with the positivist paradigm. Positivism asserts that reality is objective, measurable and best understood through scientific inquiry (Chilisa & Kawulich, 2011). Kenaphoom (2021) further explains that positivist research focuses on observable phenomena that can be quantified and analysed statistically. In this study, the key variables digital transformation, IT capability,

employee productivity, IT innovation and commercial bank performance are all measurable constructs captured using standardised scales.

3.2.1. Philosophical Justification

This study adopted a positivist research philosophy because it is most appropriate for examining causal relationships among measurable variables in a structured and objective manner (Karupiah, 202; Scalcău, 2023). Positivism is consistent with the study's quantitative cross-sectional survey design, which focuses on identifying patterns, testing hypotheses and generalising findings across a population. Under this paradigm, the researcher maintains independence from participants, and data are collected using a standardised questionnaire to minimise bias and ensure objectivity.

Additionally, positivism aligns with the use of Structural Equation Modelling (SEM), which requires quantifiable data and supports the empirical testing of theoretically derived relationships. SEM is particularly suited for assessing mediation, such as the role of IT capability in the relationship between digital transformation and commercial bank performance. Thus, positivism provides the philosophical foundation for objectively evaluating these relationships and supports the generalisability of findings across Zimbabwean commercial banks. In summary, positivism is the most appropriate approach for this study because it enables rigorous measurement, hypothesis testing, and empirical validation of the relationships specified in the conceptual model. This aligns with the study's aims, objectives and methodological choices.

3.3. Research Approach and Design

The research approach refers to the general techniques that are followed by researchers as they conduct their study, and these vary by the researcher as guided by the nature of the study and their individual preferences (Thomas, 2021). Study approaches can either be qualitative,

quantitative, or mixed methodology (Pluijmert et al., 2013). On the other hand, a research design is a deliberate and well-organised technique employed by researchers in executing a specific study, and it involves the methods and procedures that are applied in collecting and analysing data that will be used to answer the study question (Hassel & Satria, 2023). This section thus explains the research approach employed in the study. However, an appropriate research method and design need to be preceded by the selection of a suitable study philosophy to set the correct foundation for the rest of the research (Creswell & Creswell, 2023; Sharma, 2023).

3.3.1. Research Approach

The main approaches for conducting research are cited as qualitative, quantitative, and mixed methods (Hamed, 2022). According to Aysha et al. (2022), the choice of approach is not arbitrary but is guided by the nature of the research problem, study purpose, nature of the data to be collected, methods of analysis, and the theoretical basis. An exploration of these three approaches was necessary to justify the chosen methodology.

According to Chandra and Shang (2019), qualitative research is concerned with generating a deep understanding of a phenomenon by examining the circumstances, experiences, and perspectives of study participants through collecting qualitative data, which involves words, artefacts, and images (Kamparaj, 2013). Qualitative studies are not subjected to standardised procedures, exposing them to subjectivity. This is because the approach is "built on feelings, opinions, and individual experiences" (Scalcău, 2023, p. 117), and it assumes an interpretive nature, resulting in the output being subject to the researcher's interpretation. It is worth noting that this approach works with a small sample of participants (Denny & Weckesser, 2022). Although this allows a deeper exploration of the problem (Scalcău, 2023), it makes generalisation extremely difficult. Furthermore, despite being lauded for its flexibility, its demerits

(circumventing standardisation, being subjective, using a small sample, and making generalisation nearly impossible) made the approach unfit for this study.

An alternative approach involves the combination of qualitative and quantitative data collection methods, and this is called the mixed methodology approach (Ramesh & Adhikari, 2023). This approach is also known as triangulation (Ajemba et al., 2022). According to Andolo and Ojijo (2022), this methodology generates results that are more complete. That as it may, some authors recommend that the approach be implemented in psychology studies and health studies due to the complexity of human behaviour, which makes it difficult for a single approach to capture such behaviour (Emina et al., 2022). While this method has been praised for bringing in balance, validating either quantitative or qualitative data, and increasing the confidence scale for the research (Mohammed & Ashour, 2018), the need for the qualitative aspect is not seen as adding value in the current studies. This is mainly because the study's questions can be sufficiently answered by a quantitative approach, thereby obviating the need for a qualitative approach.

Regarding this study, a quantitative approach was adopted due to various reasons. According to Scalcău (2023), quantitative research considers objective theories by examining the existence or nonexistence of relationships between the variables under consideration. Scalcău further explains that in a quantitative study, the researcher is searching for objective answers to the defined problem. In addition, quantitative research applies standardised procedures.

This study investigates the impact of DT on commercial bank performance and considers the mediating role of IT capability. The study has measurable variables such as DT, IT capability, IT innovation, employee productivity, and commercial bank performance. The nature of this research (correlational) calls for the use of statistical methods to explore the relationship between

the given variables (Salkind, 2010). The participants were 310 commercial bank employees, so a quantitative approach was suitable to collect large amounts of data from them (Bryman, 2016).

In addition, this study employed both descriptive and inferential statistical methods to analyse data. Descriptive statistics made use of graphs and tables, while inferential statistics were anchored on structural equation modelling. The use of a quantitative approach is supported by prior studies (Huang, 2023; Kontic & Kontić, 2023; Turuev & Shashkina, 2023) that carried out a similar study using a quantitative research approach. This dismisses the need to use a qualitative approach or a mixed-methods approach.

Iluba and Phiri (2021) recommend the use of a quantitative approach where one intends to explore the relationship between variables, as well as where there is a need to generalise research results. This chimes with Shantie et al. (2022), who aver that the use of a quantitative approach enables the generalisation of the results to a wider population. This study's results were generalised to the banking sector. It can therefore be seen that applying a quantitative research approach to this study provides the best fit, as opposed to a qualitative approach. More importantly, the adoption of a quantitative research approach in this study dovetails with numerous earlier valid studies in a similar field (for example, Huang, 2023; Kontic & Kontić, 2023; Mahmood, 2017; Nguyen-Viet & Nguyen, 2023; Rios-Lama & Vargas-Merino, 2023; Zhu & Jin, 2023).

3.3.2. Research Design

As alluded to earlier, a research design encompasses the principles, beliefs, and assumptions that form the basis of a researcher's approach and gives an overall plan for how research questions are answered (Mentarang, 2023; Saunders et al., 2012). According to Thomas (2021), research design enables research to be based on reliable evidence and proof as opposed to simple arguments and beliefs. The research design choice reflects the priority placed by the

researcher on such dimensions as design methods, sampling, and data analysis techniques (Angie, 2023). According to Karmakar et al. (2019), research designs fall into one of three categories: experimental, quasi-experimental, or non-experimental.

3.3.2.1. Experimental Design

Experimental designs entail the manipulation of variables and measuring their effects on the results (Musau, 2022). The examination of the impact of DT on the performance of Zimbabwean commercial banks cannot be done using an experimental design. This is so because the current study does not require the conduct of an experiment where variables are manipulated. Rather, the use of experimental designs is more apt in clinical trials as well as in studies where there is a need to evaluate the effectiveness of interventions in different fields (Stephen et al., 2022). There seems to be a lack of literature supporting the use of an experimental design in similar studies; hence, this study did not adopt the same.

3.3.2.2. Quasi-Experimental Design

Similarly, a quasi-experimental design was not used in this study due to the reasons stated above. According to Chittaranjan and Andrade (2021), a quasi-experimental design compares results between groups that do not allow for randomisation or where it is considered unethical. Furthermore, this design is appropriate where interventions are required, such as in clinical studies with manageable variables. The area of DT, which is the focus of this study, has complex processes and multiple factors that render this design inappropriate (Nguyen-Viet & Nguyen, 2023).

3.3.2.3. Non-experimental Design

Studying the impact of DT in the context of commercial banking calls for a design that is not only comprehensive but also takes a holistic approach in considering the complex dynamics and multiple variables that cannot be sufficiently addressed by either experimental or quasi-

experimental designs. This study thus considered non-experimental designs. Simply put, this is a design that does not utilise an experiment (Abraham et al., 2019). According to Karmakar et al. (2019), the main non-experimental designs are case studies, naturalistic observations, and surveys. It is essential to choose the appropriate design within the non-experimental design universe. To align the appropriate design with the study, the following section considers the various branches of non-experimental design.

3.3.2.4. Case Study

A case study design entails an in-depth inquiry into a single entity or small group of entities, events, activities, or processes to provide a complete and accurate description of the phenomenon being studied (Creswell, 2009). While several studies have utilised a case study approach to study DT in commercial banks (for example, Anupa & Goveas, 2023; Papathomas & Konteos, 2022; Wardhani & Wang, 2022), this study opted for a correlational study premised on a survey. This is because the case study approach is often associated with qualitative studies, as evidenced by the study approaches used in all the above studies. Furthermore, the use of a case study was regarded as inadequate in this study, as it may not adequately capture the various associations in the theorised constructs of this study. More importantly, it was envisaged that this approach would not result in the achievement of this study's objectives. This is because a case study approach exhibits limitations where large cases are involved, presents challenges regarding generalisation, and brings in subjectivity in data interpretation (Attia & Sinha, 2023). This study handles thirteen commercial banks, and this would not fit in the case study design.

3.3.2.5. Naturalistic Observation

Naturalistic observation is an approach used in academic and professional fields to study and measure the everyday behaviour of animals or people in their natural environment (Chen,

2023). The aim is to capture behaviour as it occurs, without manipulating the environment. Such studies have been seen to be descriptive and useful in exploratory studies. Consequently, this approach was not appropriate for this study, given that the constructs under study (that is, DT, IT capability, IT innovation, employee productivity, and commercial bank performance) cannot be measured by simply observing.

3.3.2.6. Survey Design

According to several authors (Osei et al., 2023; Roh et al., 2021), a survey allows the researcher to collect large quantities of data that can be statistically analysed. This study collected substantial amounts of data from banks in Zimbabwe. When surveys seek to determine the existence of relationships between variables, they are known as correlational studies (Das et al., 2023). This study adopted the correlational study design as it is supportive of this study and the attendant study questions. Quantifiable data across five variables were collected in this study from participants in the commercial banking sector, which supports the use of a survey design.

Furthermore, using a correlational approach is in line with valid prior studies (for example, Íslatince, 2023; Rios-Lama & Vargas-Merino, 2023) that applied a survey to study DT in the banking sector. This study made use of descriptive and inferential statistics, and as Saunders (2012) states, the survey design is important in supporting the instrument relevant to collecting such data. A descriptive analysis of the collected data was done using metrics like measures of central tendency, mean, and dispersion, which include the standard deviation. Furthermore, Sekeran and Bougie (2016) contend that study questions in a research instrument form a self-administered questionnaire that respondents in a survey will complete on their own. Pursuant to the literature support and other issues discussed earlier, the researcher is convinced that the

contextual provisions of a survey design are highly appropriate to address the study objectives and all aspects of the phenomenon being investigated.

3.4. Research Design Steps

The overview of the process that was followed to achieve the objectives of this study is discussed in this section, while the granular details are given in the respective sections of this chapter. To enhance the clarity of the research process, Figure 1 below shows that this study was carried out in five stages: (1) introduction and background, (2) literature review, (3) methodology, (4) data collection and analysis, and (5) discussion of results and key conclusions.

The first phase set the impetus for the study by introducing the focus area and giving a background to digital transformation and commercial bank performance. The problem statement and purpose statement established the need for the study. This was followed by the literature review process. The theoretical framework supporting the study was established. The stage saw the development of the study hypotheses, culminating in the development of the study's conceptual framework. A literature review, guided by the study objectives, was carried out.

The literature review stage was conducted using secondary sources, such as peer-reviewed articles on DT in the commercial banking sector and the mediating role of IT on the relationship between DT and performance. The stage assisted the researcher in identifying the study gaps and, hence, formulating the problem above.

The third phase entailed the laying out of the study methodology, and this required that the methodology be established upon a clear research philosophy. The research approach and design were identified, and reasons for adopting the chosen approaches were laid out. On the other hand, those approaches not adopted were also considered, and the attendant reasons for their

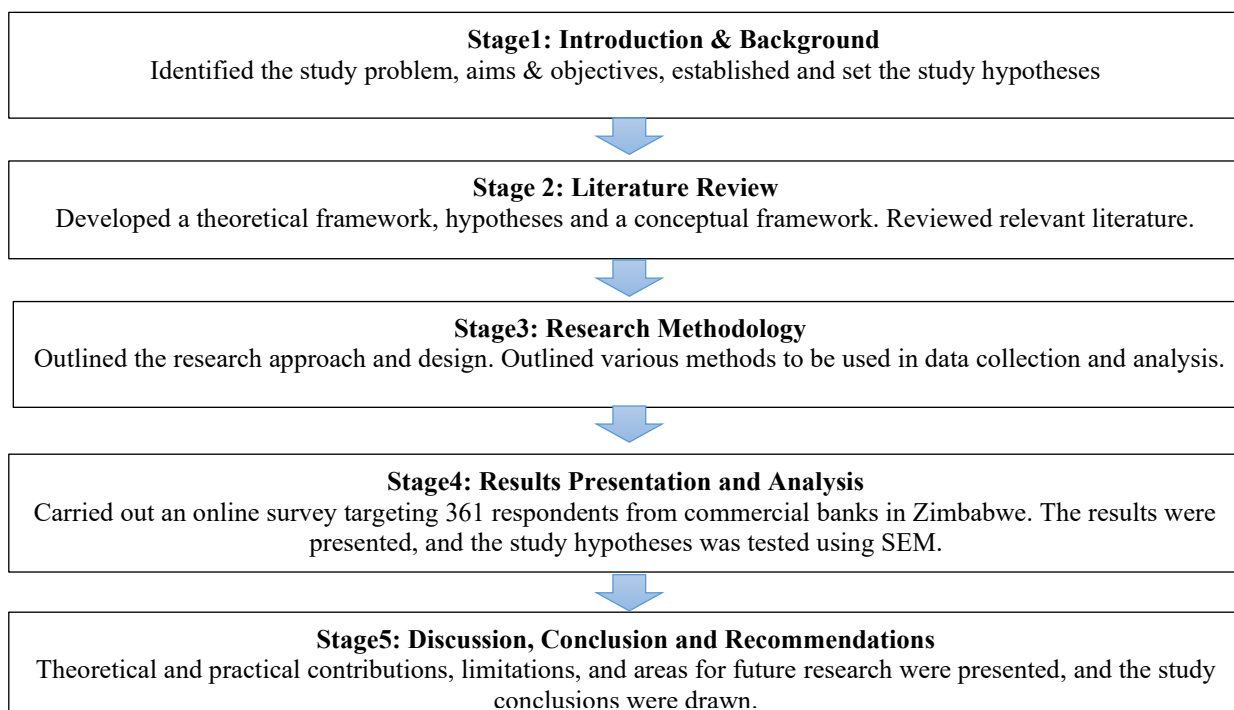
inapplicability were outlined. The need for pilot testing and the data collection, analysis, and instrumentation used to collect the data were all discussed in this phase.

Concerning stage four, the study used an online survey of 364 respondents per the Krejcie and Morgan (1970) table that establishes the number of participants given a particular population size. Structural Equation Modelling (SEM) was chosen to validate the applicability of the conceptual model.

Finally, phase five discusses the results stemming from the data analysis in the previous phase. It also outlines the theoretical and practical contributions that this study made. The limitations and directions for future research were also provided. Key conclusions were drawn and presented in this phase. Figure 8 below summarises the research process as discussed earlier, and the associated chapter for a given stage is also shown.

Figure 8

The Research Process



3.5. Pilot Survey

A pilot survey is a preliminary study that is done ahead of the main research, and it is important as it allows the researcher to test and refine their survey instruments ahead of distribution to a wider group of participants (Emily et al., 2023). Consequently, this study conducted a preliminary survey before instituting the main survey. This helped in assessing whether the participants understood the question, implementing strategies to address the reliability of responses, and enhancing the clarity of the study instrument (Ozimek et al., 2023). Furthermore, the need for a pilot survey in this study was necessitated by the need to include quality control components, establish imputation procedures for missing data, and tailor the survey to commercial banking employees to ensure better and more accurate data collection (Tanwar et al., 2022). Accordingly, an online survey using Google Forms was developed, and the link was shared using various communication platforms. The platforms include email, WhatsApp, and LinkedIn.

3.6. Population and Sample of the Research Study

This section describes the study population by indicating the unit of analysis and the unit of observation. The sampling techniques and the determination of the study sample will be discussed. Further, the procedure for participant recruitment will also be explained.

3.6.1. Unit of Analysis and Observation

It is essential to define the unit of analysis and the unit of observation to precisely determine the research population (Ritella et al., 2020). In quantitative research, this lays the groundwork for the selection of a representative sample that helps studies address the study problem (Casteel & Bridier, 2021). Given that this study took a quantitative approach, it was relevant to establish the unit of analysis and observation relevant to this study.

3.6.1.1. Unit of Analysis

The unit of analysis pertains to the object that is delineated by the amassed data, serves as the subject of the analysis, and sets boundaries of what needs to be included in the study (Ritella et al., 2020). Where composite measures examine the entirety of the organisation, then such studies will have the company as the unit of analysis. This study considered DT and commercial banks; the unit of analysis in this study was therefore defined as the commercial banks in Zimbabwe. This chimes with Casteel and Bridier (2021), who state that the unit of analysis is the one to which the study variables being examined apply.

3.6.1.2. Unit of Observation

The unit of observation in research is the object that serves as the source of the study data relevant to the unit of analysis (Casteel & Bridier, 2021). It is the individual or participant who provides information in the case of a survey. In this study, the selected commercial bank employees were requested to complete the structured questionnaire; therefore, these were operationalised or defined as the unit of observation.

3.6.2. Population of Interest

A population of interest is defined as the whole group of people, elements, or things that the researcher intends to investigate and come up with conclusions about (Kestenbaum, 2019). It is the entire group (that fulfils specific criteria) of individuals, elements, cases, events, or objects from which data is being collected and analysed, and to which study outcomes may be generalised (Casteel & Bridier, 2021). This study identified the population of interest as all employees in the financial institutions in Zimbabwe that are regulated by the Reserve Bank of Zimbabwe (RBZ). According to the RBZ (2023), there were 250 financial institutions (Appendix F) operating in Zimbabwe as of 30 September 2023. These institutions comprised commercial banks, building

societies, savings banks, microfinance institutions, development financial institutions, and various other financial institutions. For this study, employees from these 250 financial institutions made up the population of interest.

3.6.3. Target Population

A conceptually bound subset of the population to which the researcher has interest and access with similar characteristics to the population of interest is referred to as the target population (Ackerman et al., 2019). Casteel and Bridier (2021) illuminate the need for a target population to be exclusive to avoid those elements that are not supposed to be included, as this will lead to misrepresentation of the population. Commercial banking is part of banking that comes in different forms, such as building society activities, development banks and savings banks. According to the International Monetary Fund (IMF) (2022), the architecture of the Zimbabwe banking system as of 31 December 2022 was such that there were 19 banks, of which 13 were commercial banks, five were building societies, and one was a savings bank. In the context of this study, banks were those registered by the Reserve Bank of Zimbabwe and were then operating in Zimbabwe in accordance with the general licensing requirements of the central bank.

The target population was therefore the sum of employees who were working for the 19 banks as defined by the RBZ (2023). According to Casteel and Bridier (2021), the target population needs to have set boundaries that include time and space; thus, this study excluded any former employees or any employees of bank agencies. Participants were bank employees aged between 18 and 65 years of age and these were employees of the Zimbabwean banking operation, given that some of the banks have international representation.

3.6.4. Sampling Frame

Having established the target population, this study identified the sampling frame. A sampling frame is defined as a group of elements from which study samples are extracted or recruited and represent the study population (Prandner & Weichbold, 2019). Some authors (Casteel & Bridier, 2021; Lo et al., 2020) view a sampling frame as the precise collection of participants or objects that will be asked to participate in the research. Consequently, it must consist of a sufficient number of elements that will support data collection to have a complete data set for analysis.

This research studied the impact of DT on commercial bank performance; therefore, employees of any other financial institutions that are not commercial banks were not included. Specifically, employees from the five building societies and one savings bank, development banks and microfinance banks were excluded from participating in this survey. According to the Reserve Bank of Zimbabwe (2024) statistics, there were five thousand six hundred and six (5606) people employed by the thirteen commercial banks operating in Zimbabwe as of 31 December 2024. The sampling frame, therefore, in this study was the number of commercial bank employees in Zimbabwe at the time of the study. A sample was extracted from these 5606 employees. This was the most appropriate population to respond to this study, given the study objectives that focused on the impact of DT on the performance of commercial banks in Zimbabwe. These employees deal with DT issues at their respective banks, making them the most appropriate to respond to the study problem and purpose. How the sample size was determined is discussed in the sampling section below.

3.6.5. Participating Banks

Before establishing the study sample, it is important to clarify which banks participated in the survey and why. As indicated earlier, Zimbabwe's banking landscape was made of twenty-seven banking institutions, of which thirteen were commercial banks, 3 building societies, 7 deposit-taking microfinance institutions, 3 development financial institutions and 1 savings bank (The Reserve Bank of Zimbabwe, 2022). This study targeted commercial banks only because they have the biggest market share in the financial services sector (RBZ) and have been more aggressive in implementing DT. In addition, commercial banks play an important role in the Zimbabwean economy. In line with prior studies (Kaondera et al., 2023; Murwira et al., 2019) that used all the commercial banks, this study also utilised samples from all thirteen commercial banks.

3.6.6. Sample of the Research Study

Sampling in research has been defined by several scholars as the act of choosing from a larger population, a subset, or a sample to make observations and draw inferences regarding the population (Adeoye, 2023; Mohapatra & Chamola, 2020). The importance of sampling in research is that it has implications for the quality of the results of the research; therefore, this study paid great attention to it by aligning the sampling techniques with the study design. According to Khan (2020), quantitative designs aim to maximise the statistical representativeness of the study population as opposed to qualitative designs that aim at a complete representation of the study phenomenon. Sampling has largely been categorised as either probability and aligned to quantitative designs or nonprobability and aligned to qualitative studies (Kalton, 2023; Wiśniowski et al., 2020). Both techniques are discussed below, indicating the one that was considered appropriate for this study and the attendant reasons.

3.6.6.1. Non-Probability Sampling Techniques

These are sampling techniques where participants are selected from a population using a predetermined selection approach. Mulisa (2022) explains a non-probability sampling technique as one that is chosen under non-random circumstances where every member of the population does not possess an equal chance of being selected. These techniques are distinguished from probability sampling in that they do not allow for either direct or indirect estimation of population parameters (Stratton, 2023). Various non-probability sampling techniques exist, and these are convenience sampling, purposive sampling, quota sampling, and snowball sampling (Gupta, 2020).

Convenience sampling entails selecting participants who are easily available or accessible (Mulisa, 2022). While this has been seen as less costly and time-saving, some studies have indicated that it can lead to over-representation, a loss of accuracy in representing diverse views, and the introduction of selection bias (Lines et al., 2022). Consequently, this study did not use this approach, given the need for a representative sample. Furthermore, this approach conflicts with the quantitative design as it limits generalizability and cannot capture the true variability and complexity of the population under study (Lines et al.). For that reason, it was not appropriate for this study.

Purposive sampling is another technique that sits on the non-probability sampling continuum, and it involves selecting study subjects based on a specific criterion as defined by the study purpose (2021). Participation in a study thus depends on the evaluation by the researcher of whether the subject will provide valuable and unique information regarding the study phenomenon. While the approach is extolled for providing an opportunity for in-depth exploration of the issue being studied (Denieffe, 2020), it was considered unfit for this study due to its approach to sample selection. Purposive sampling determines the sample size through data saturation,

resulting in non-representative samples (Ames et al., 2019). This study required a sample size that is representative of the population and thus needed the application of a priori power analysis in the determination of the sample size, a feature that cannot be applied with purposive sampling.

According to Khan (2020), quota sampling is a non-probability sampling method that is used to select participants based on defined characteristics or quotas that aim at ensuring the representation of different groups in the population. Again, it has been argued by scholars (Zhang et al., 2020) that quota sampling may lead to overrepresentation in the study quotas, thus making it not the best for quantitative analysis, as this may introduce bias in the sample, thereby affecting the generalizability of the results. Given the foregoing, the efficacy of this approach in achieving this study's objectives is therefore in question. It follows that this was not used for determining the sample for this study.

Another non-probability sampling technique is the snowball sampling technique. Dragan and Isaic-Maniu (2022) define this technique as one that is applied in network research to identify and study concealed populations, such as drug users, by relying on referrals from initial participants. In this approach, the initial participants are requested to share the questionnaire with their social ties. This study shunned this approach as it did not help achieve study objectives, and as several scholars have observed, it relies on the participants sharing the questionnaire, which may lead to a lack of representativeness in the sample (Chan, 2020). This study required that the study sample be predetermined, yet snowball sampling does not allow the predetermination of sample sizes, given that the number of participants cannot be established beforehand.

Overall, non-probability sampling techniques were not suitable for this study due to the prevalence of bias in the sampling process and their inability to provide probability samples, which are key for generalising results (Ames et al., 2019; Zhang et al., 2020). Furthermore, they were not

the best for achieving the objectives of this study. To effectively achieve this study's objectives, it was therefore important to consider the use of probability sampling techniques.

3.6.6.2. Probability Sampling Techniques

In probability or random sampling, the items are randomly chosen such that there is a known and equal nonzero chance that they will be included in the sample (Gupta, 2020; Wisniowski et al., 2020). These sampling techniques allow the researcher to estimate population characteristics directly from the sample. This study used a probability sampling technique mainly due to the need to ensure that the sample is representative of the target population, as well as making accurate statistical inferences regarding the population based on the data obtained from the sample. Prior studies in a similar domain in Zimbabwe (for example, Murwira et al. 2019) applied probability sampling techniques, which shows that they are suitable for this study. It is important to note that some scholars (Mulisa, 2022; Rahman et al., 2022) indicate that the choice of sampling techniques rests on research objectives, the availability of the sampling frame, and the scope of the study. This study's objectives warranted the use of a probability approach, and the sampling frame was established as discussed earlier.

Nevertheless, there are different probability sampling techniques, and it is equally important to choose the appropriate one. The literature identifies stratified sampling, systematic sampling, cluster sampling, and simple random sampling as the main random sampling approaches (Gupta, 2020; Mulisa, 2022; Rahman et al., 2022; Wisniowski et al., 2020). It is generally agreed that these methods are commonly used in quantitative studies as they maximise statistical representativeness.

Systematic random sampling is defined as a sampling technique in which the study subject is selected after a fixed periodic interval known as the sampling interval (Casteel & Bridier, 2021). While it has been seen as a simple technique to apply, this study aligns with Azeem (2022), who concluded that systematic sampling cannot provide an unbiased estimate for sampling variance. Furthermore, ensuring that the population size is an integral multiple of the desired sample size is not always easy to achieve. There seems to be a lack of literature support regarding the use of this approach in similar studies, and this rendered it undesirable in this study.

Cluster sampling entails dividing the population into clusters or groups and then selecting a subset of clusters as the study sample (Hoang & Ta, 2022). While cluster sampling has been seen to be simple and requires choosing selected clusters randomly as opposed to the evaluation of vast populations, it has been seen to be inappropriate for this study due to the risk of larger sampling error, uniformity in demographics in the cluster, and the risks of over- and under-representation in the chosen clusters (Latpate et al., 2021). This study avoided the use of clustering for these reasons and the lack of literature support in terms of its use in similar studies. Furthermore, the recorded advantage of the approach, which allows for the collection of data from geographically dispersed groups, is not relevant in this study due to the use of technology, which allows the collection of data from all commercial bank participants, despite their location.

Simple random sampling is a technique on the probability sampling technique continuum in which the sample is extracted from the population, giving each subject an equal chance of being chosen (Latpate et al., 2021). It is agreed that this approach aims to ensure that the observed data represent the target population and that the information provided is reliable. This technique is operationalised by drawing participants one by one with or without replacement, and this is one of the most applied sampling methods in quantitative research (Hirschauer et al., 2022). Casteel and

Bridier (2021) point out that such populations offer support for simple random sampling. Kaondera et al. (2023) studied ways to buttress customer relationship management using DT by Zimbabwean commercial banks using simple random sampling to build the study sample. Several recent studies (Mulisa, 2022; Shehadeh et al., 2023; Theiri & Hadousa, 2024; Uribe-Linares et al., 2023) used simple random sampling to answer study questions in similar arenas.

That as it may be, the risk in Kaondera et al. (2023) and the studies above is that responses may be heavily skewed toward a single or a few banks. To remedy this, the current study sought to achieve representativeness across the banks. Resultantly, this study preferred the use of stratified random sampling by distributing questionnaires proportionally among the participating banks.

Stratified sampling is a sampling technique where the population is divided into smaller groups or strata based on some common characteristics exhibited in the population (Arunachalam & Spence, 2023). The need to apply stratified sampling is informed by the existence of two or more strata of interest in the population, which requires that they be proportionally represented (Casteel & Bridier, 2021). Once stratification is achieved, simple random sampling is applied to the strata. According to Casteel and Bridier, applying simple random sampling to the strata allows for probabilistic representation, while stratification allows for the probabilistic representation of the different strata. Whereas stratification offers several advantages to quantitative studies, there is a paucity of studies that have applied this approach to studying digital transformation in commercial banks. This study, therefore, widens the methodological application of this approach, thus contributing to the literature. Stratification was achieved by distributing the study instrument proportionally across the banks. The number of employees from each bank became the strata, and the questionnaires were distributed in proportion to that headcount.

In essence, probability sampling is associated with quantitative studies, as evidenced by prior studies (Murwira et al., 2019; Theiri & Hadousa, 2024; Uribe-Linares et al., 2023). In addition, studies with a huge scope, like the current one that collected significant data from commercial banks, are better done using probability sampling techniques (Mulisa, 2022; Rahman et al., 2022). While several probability sampling techniques are given in the literature, this study's objectives made the use of stratified random sampling the most appropriate. Furthermore, the need to achieve representativeness across the 13 commercial banks supported its use.

3.6.6.3. Sample Size Determination

The question of what sample size to use to make valid inferences in a quantitative study has been topical for decades. This is because the sample size in a quantitative study affects or has implications for the accuracy, statistical power, and reliability of the research results (Ramirez, 2022). Several factors, such as the nature of the research, the data analysis program, the research supervisor, and other practical considerations (Memon et al., 2021), have been touted as determinants of sample size. To determine the applicable sample size, this study used both G*Power and Krejcie & Morgan's (1970) Table (KMT). While it is agreed that the size of a sample is key in a quantitative study, scholars have recently pointed out the need to establish a minimum sample size that will ensure study results are reliable (Casteel & Bridier, 2021; Hair et al., 2019; Uttley, 2019).

This study achieved the sample size by first establishing the minimum sample size and then determining the sample size to be applied to the study. According to Memon et al. (2021), one way of establishing the minimum sample size is by using an a priori power analysis using the parameters of the study and the expected statistical test. A power analysis is essential as it helped

to indicate the minimum size of a sample, which will give a high probability of correctly rejecting the null hypothesis.

The study employed a priori power analysis, which is highly applicable and beneficial for determining the sample size in the scenario involving the study of employees in financial institutions in Zimbabwe, which are regulated by the Reserve Bank of Zimbabwe (RBZ). In this context, conducting a priori power analysis before collecting data helped ensure that the study is designed effectively to detect an effect of interest, if it exists, with a high probability (power) (Casteel & Bridier, 2021). According to Memon et al. (2020), power analysis must be employed by researchers to determine the minimum size of a given sample.

3.6.7. Operationalising the A Priori Power Analysis

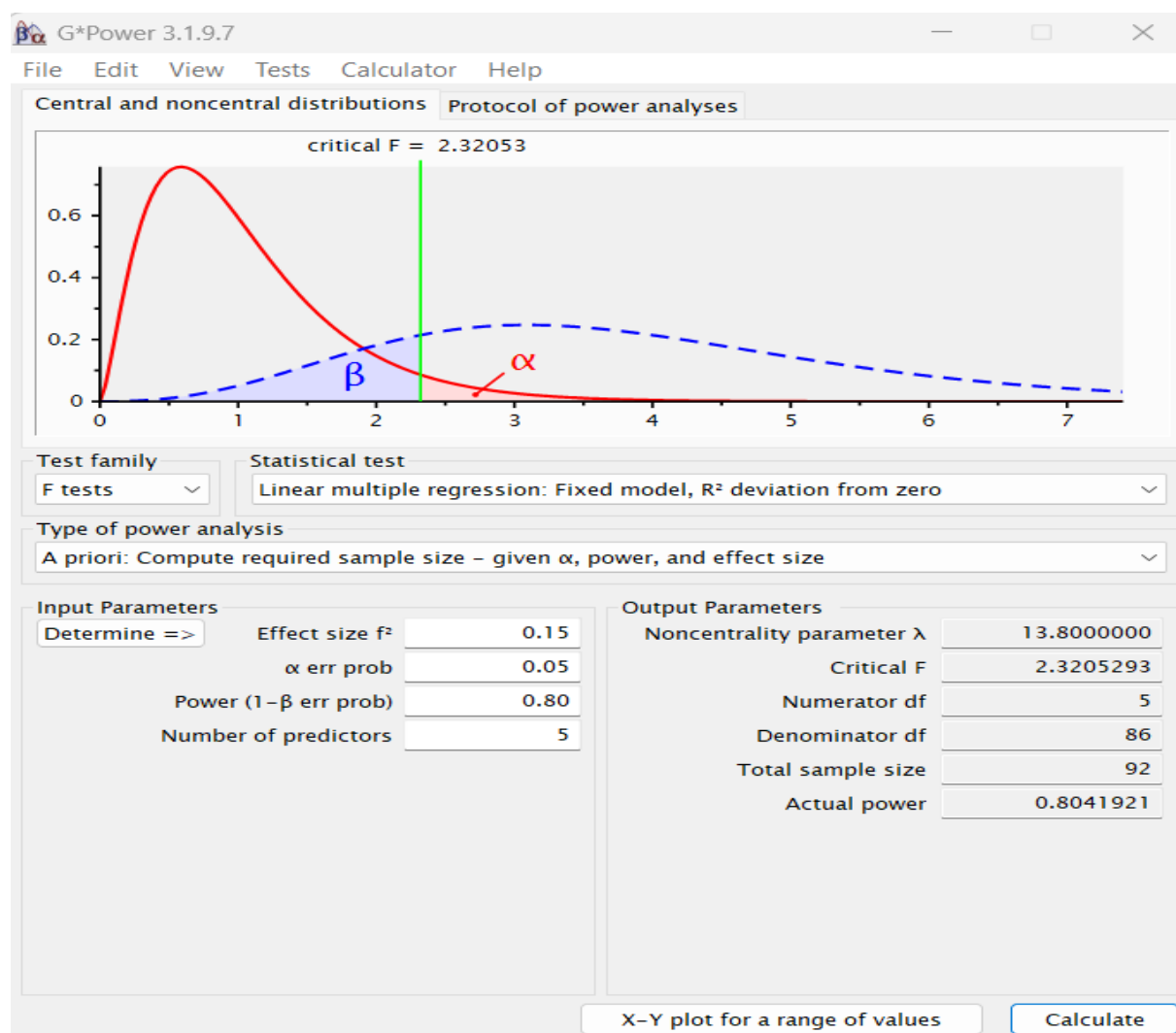
Power analysis was carried out using G*Power 3.1.9.7. To arrive at the minimum sample size for this study, the conceptual framework was used to establish the part of the model with the highest number of predictors (Memon et al., 2020). Consequently, the commercial bank performance variable has 5 predictors, and this is the highest number entered in the input parameters. Having established the highest number of predictors (Step 1), the researcher set the significance level (α) and power ($1-\beta$) (Step 2). Prior studies suggest a level of significance of 0.05 and a power of 0.80 (Casteel & Bridier, 2021) to be sufficient.

This study agreed, and the implication was that this study was willing to accept a 5% chance of type I error (falsely claiming an effect). A power of 0.8 signifies the study's intention to accept at least an 80% chance of detecting a true effect. Kemal, Ö. (2020) justifies the use of a significance level of 0.05 and a power of 0.80 to determine the sample size required for the analysis of financial performance in commercial banks. The final step requires the determination of the effect size (f^2), which ranges from small to large (0.02, 0.15, and 0.35), respectively. This study

applied an effect size of 0.15, which is a medium-sized effect as applied in the studies by Murwira et al. (2019). Overall, the minimum sample size for this study was calculated using a priori power analysis for central and non-central distributions using G*Power 3.1.9.7 software. It was based on F tests and specifically for linear multiple regression with the inputs discussed earlier, and this returned a minimum sample size of 92 participants, as shown in Figure 9 below.

Figure 9

Power Analysis Showing Minimum Sample Size



Note. Results for calculating the minimum sample size using G*Power 3.1.9.7 software.

The use of a priori analysis was particularly important in this study, as it allowed the researchers to control Type I (false positives) and Type II errors (false negatives). This is very crucial in a study where the implications of the results can influence policy or operational changes in the financial sector. Scholars (Casteel & Bridier, 2021; Memon et al., 2020) have also pointed out that determining the sample size before accomplishing the study results in the efficient allocation of resources, such as time and budget, especially in a potentially resource-intensive setting like surveying employees across multiple institutions, as is the case with this study. They further posit that conducting power analysis and determining sample sizes adds to the study's ethical considerations (Zyphur & Pierides, 2019), as it helps the researcher to not unnecessarily burden participants or waste resources by not recruiting more participants than necessary or too few to detect a meaningful effect.

Having used G*Power to establish the minimum sample size (92 participants), the researcher sought to determine the exact sample size required by using the widely used Krejcie and Morgan's (1970) table (KMT) (Memon et al., 2020). In this study, this method converges with the stratified random sampling technique adopted; therefore, it is seen as adequate. Sakala and Phiri (2019) used the KMT to determine the sample size for the banking industry in Zambia. This study started by determining the size of the sampling frame. This was done by consulting the Reserve Bank of Zimbabwe (RBZ) (2023) statistics that list all the commercial banks and the number of employees. As indicated in Table 4 below, the number of employees employed by commercial banks in Zimbabwe was about 5606 at the time of the study.

Table 4*Zimbabwean Commercial Banks and Number of Employees*

Bank	Number of employees
AFC Bank	553
BancABC	63
CBZ	1094
FBC Bank	426
First Capital Bank	545
Metbank	89
Nedbank	320
NMB	425
Stanbic	519
FBC Crown	236
Steward Bank	440
ZB Bank	666
Ecobank	230
Total	5606

Note. Source: The Reserve Bank of Zimbabwe, 2023

The sample space of 5606 is above 5000 but below 6000; thus, the sample size value for this study was 361 participants, which corresponds to the upper boundary of 6000 on the KMT. Figure 10 below shows the sample size corresponding to a population size of 6000.

Ultimately, this study used the KMT to establish an appropriate sample for the study due to its ease of use. Memon et al. (2020) noted that this method has been used extensively over the decades. Hakimi et al. (2023) applied the KMT to establish an appropriate sample size in a study entitled “Factors influencing mobile banking among digital natives”. Given that the number of employees in the commercial banking sector is publicly available through statistics provided by the RBZ (2024), the use of the KMT was appropriate for this study. The sample size was supported by the a priori power model, which showed that a minimum sample size of 92 participants was appropriate for this study to give credence to the results. Consequently, the study adopted a sample size of 361 participants. These participants were of any gender, currently working for Zimbabwean

commercial banks (at the time of the study), and between the ages of 18 and 65 inclusive. These ages were considered appropriate because 18 years is the age of the legal majority in Zimbabwe, where one is deemed old enough to make their own decisions without the need for parental or guardian intervention. Sixty-five years is the retirement age in the country. Since stratified random sampling was used, it was expected that the sample thus generated would be sufficiently representative of the study population.

Figure 10

The Krejcie and Morgan Table for Determining Sample Size for a Known Population

N	S	N	S	N	S
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368

Note. The figure provides sample size (S) recommendations based on known population size (N), population proportion, and desired accuracy. From “Determining sample size for research activities,” by R.V. Krejcie and D. W. Morgan, 1970, *Educational and Psychological Measurement*, 30(3), p.608.

3.6.7.1. Sample Size Justification

The population for this study consisted of 5,606 employees across all thirteen commercial banks in Zimbabwe. To determine an appropriate and statistically defensible sample size, a triangulation approach was used, drawing on both G*Power analysis and the Krejcie and Morgan (1970) sample size table. First, a G*Power 3.1.9.7 power analysis was conducted for multiple regression with medium effect size ($f^2 = 0.15$), $\alpha = .05$, and power = 0.95. The analysis yielded a minimum required sample size of 92 participants. This established the minimum statistical threshold needed to detect meaningful effects within the model, particularly for mediation testing.

Second, the Krejcie and Morgan (1970) table was consulted to determine a sample size appropriate for a finite population of 5,606. According to the table, an estimated sample size of 361 respondents would be sufficient to represent the population with a 95% confidence level.

Given the difference between the two approaches, the study adopted a conservative strategy: G*Power was used to confirm minimum power requirements, Krejcie & Morgan was used to determine maximum representativeness, and the final target sample was set at 361, aligning with Krejcie & Morgan's recommendation. However, due to non-responses and incomplete questionnaires, a common occurrence in organisational surveys, the final number of valid and usable responses was 310. This response rate remains well above the G*Power minimum (92) and provides sufficient statistical power for SEM analysis, ensuring reliable hypothesis testing and stable model estimation.

3.6.8. Participant Recruitment

It is important to implement a robust participant recruitment process in any study to recruit sufficient participants to respond to the study question (Meredith, 2023). This study's recruitment plans involved seeking permission from the participating banks' management through a gatekeeper

letter (see Appendix D). Once approval was granted, the recruitment of participants was done through emails and social media platforms. The use of technology was appropriate since employees working for commercial banks use the Internet and email, and they are sufficiently educated to be able to use the chosen platforms.

3.7. Research Tools

As previously mentioned, the basis for this investigation into the digital transformation frameworks employed by commercial banks in Zimbabwe was rooted in a survey design. This aligns with various prior studies (such as Charu et al., 2023; Hasan & İslatince, 2023; Kitsios et al., 2021) that have explored the effects of DT in the banking sector. The decision regarding data collection methods in this study was between the utilisation of interviews and questionnaires. According to Saunders et al. (2012), when it comes to surveys that entail the gathering of numerical data rather than textual data, a quantitative research approach is more efficacious. In light of this, a quantitative approach was used for this study, thus making the employment of a questionnaire the most suitable means of data collection.

Within the framework of a quantitative methodology, the utilisation of a questionnaire has received acclaim from some scholars for its capacity to elicit both qualitative and quantitative data (Kircher, 2022). As observed in this investigation, a questionnaire is advantageous in establishing relationships between variables in the problem domain and ensures the measurement of constructs that can be assessed among the study participants (Aithal et al., 2020; Iwaniec, 2019). Owing to advancements in technology, questionnaires can now be conveniently disseminated online, thereby enhancing the efficiency of data collection (Valli, 2016), hence their application in this study. The present inquiry employed a structured questionnaire that comprises divisions according to the

objectives of the study. Given the existence of various types of questionnaires, the subsequent segment will deliberate on these and substantiate the selected type of questionnaire.

3.7.1. Types of Questionnaires

Questionnaires (study instruments) can be categorised into two distinct types: self-administered and interviewer-administered. Tusting (2022) explains that self-administered questionnaires are completed by respondents either on paper or electronic devices. On the other hand, interviewer-administered questionnaires are conducted either face-to-face or over the phone (Werner, 2023). Saunders (2012) provides further clarification by categorising self-administered questionnaires into three groups: internet and intranet-mediated, postal-based, and delivery and collection questionnaires. In this study, the internet-mediated questionnaire was used within the realm of self-administered questionnaires, which refers to an online or web-based questionnaire. This choice was deemed appropriate given that employees in the commercial banking sector in Zimbabwe are well-educated and familiar with Internet usage. Additionally, utilising this approach aids the use of an extensive sample size from the Zimbabwean banking sector, and it aligns with the constrained time frame for the study.

The distribution of the questionnaire link to employees of commercial banks in Zimbabwe was carried out through various electronic communication channels, such as emails, WhatsApp, SMS, and social media platforms, including LinkedIn. Previous research has provided evidence in support of utilising social media and online platforms as means of disseminating questionnaires (Abu & Baha, 2022; Putranto, 2019). The inclusion of online and social media distribution channels was deemed essential in the present study due to their ability to encompass the advantages of convenience, efficiency, and extensive coverage.

3.7.2. Study Instrument Development and Validation

The development and validation of a questionnaire constitute crucial elements in research. This is because the process of questionnaire development entails the meticulous design of a questionnaire to gather pertinent data relevant to the phenomenon under examination (Hadler et al., 2022). Moreover, the authors shed light on the fact that this process encompasses various stages, including the identification of appropriate measurement scales, the composition of the questions, the establishment of the questionnaire construct, and the preliminary testing of the instrument before the ultimate survey implementation.

Consequently, the first step in the questionnaire development involved articulating the initial version of the instrument in MS Word as guided by the literature, theoretical underpinnings, conceptual framework, and study goals. According to Banerjee (2019), a quantitative research instrument must be informed by a comprehensive examination of the extant literature. It is imperative to underscore, at this juncture, that a valid questionnaire ought to be rooted in prior research endeavours unless such a foundation is unattainable. Consequently, except for the demographic section, the research questions featured in the study questionnaire were adapted from previous investigations. Further, the study tool was presented to three academics (with PhDs and several published research papers) for review, and it was also modified to the standards of UNICAF University. This resulted in two additional questions in the demographics section, as well as some additional multiple-choice questions on three questions.

This study's questionnaire attempted to ensure that the information gathered was robust and reliable by aligning the questions to the study goals (Evers, 2022). This was achieved using the Goal Question Metrics (GQM) measurement technique (Nooralisa et al., 2020), which

recommends that purposeful measurement of goals is achieved by first specifying them, linking them to the data, and interpreting the data per the study goals. This approach to questionnaire design was used due to its capacity to acquire data that would specifically address the study questions, thereby achieving the study goals. The goal of this study was defined by the study objectives (The impact of DT on commercial bank performance considering the mediating role of IT capability). Questions to address the goals and assess the study constructs (questionnaire items) and metrics involve the strategy of analysis used to measure the constructs quantitatively.

The study questionnaire design incorporated the need to achieve a reliable measurement of the constructs. This was achieved by using more than one question to address each goal, as this allowed comprehensive exploration since single questions may not provide a complete picture of a construct, and multiple questions also provide cross-validation responses (Nadir et al., 2023). Consequently, this study's questionnaire consisted of five questions on each study construct. Although that may be seen as introducing the risk of redundancy, the questionnaire avoided this risk by using factor analysis (FA), which is an accepted method in research to identify and address redundancies in questionnaire items (Werner, 2023). After applying FA to the study questionnaire, no item exhibited redundant characteristics, so all the questions were maintained.

The final questionnaire deployed to commercial banks was reviewed after the pilot test, and the necessary adjustments were made. However, the initial questionnaire consisted of three sections. The introductory letter introduced the questionnaire to the respondent. Section A was the demographics section, comprising eight multiple-choice questions. Section B comprised 25 closed-ended questions utilising a 5-point Likert scale (with scales 1, 2,3,4, and 5 representing Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree, respectively) as applied by several researchers (He et al., 2021; Joensuu-Salo & Matalamäki, 2023; Yu et al., 2022).

Sha and Gabel (2020) contend that the utilisation of language within a questionnaire holds significant sway in guaranteeing the dependability and accuracy of the data collected. Consequently, the inclusion of lucid instructions, user-friendly navigation, and clear and concise language in this questionnaire is seen as facilitating the seamless completion of the survey (Muhardis et al., 2019). The survey respondents were explicitly guaranteed that the evidence gathered would be utilised solely for academic purposes, and there was no necessity for any data about their identity or the institution they were affiliated with. Furthermore, explicit guarantees were made to maintain the confidentiality of said information.

3.7.3. Structure of the Study Instrument

The research utilised a structured questionnaire as the survey tool, enabling participants to choose the most suitable option based on their commercial bank's stance on the specific construct. The questionnaire had a welcome page section, a demographics section, and a main section that contained closed-ended questions. The welcome page requests participants to participate in the survey on studying the DT frameworks for commercial banks in Zimbabwe and their impact on bank performance. It indicates that the survey will take a maximum duration of 20 minutes to complete and highlights the confidentiality and anonymity associated with the study. Further, the participant is provided with an informed consent form in this section to allow them to confirm that they are fully informed regarding the study and that they may withdraw at any time without consequences.

The demographics section required that participants indicate their gender, age, educational level, duration of employment, employment status, number of years the bank has been operating, and position in the bank. All five constructs of the conceptual model, as undergirded by study objectives, were covered in the main section of the questionnaire. This section was made up of

closed-ended questions on a 5-point Likert scale. This aided easier categorisation and quantification of data, assisted in achieving standardisation and consistency, and increased the likelihood of a high response rate (Retnawati & Arliani, 2022). Table 5 below shows the corresponding measuring items for each variable and the respective literature support. The detailed questions are shown in section B of the questionnaire in Appendix G.

Table 5

Research Questions and Measurement Scales from the Literature

Construct	Measuring Items (See Appendix G)	Literature Support
Digital Transformation	Q1- Q6	Aral & Weill, (2007); Masoud & Basahel (2023); He et al. (2021); Shehadeh et al. (2023).
Employee productivity	Q7-Q12	Cianci et al. (2024); Nguyen (2023).
IT Capability	Q13-Q18	Bharadwaj, A. S. (2000); Nwankpa & Roumani, (2016); Yum (2000)
IT Innovation	Q19-Q24	Azubuikwe (2013); Khin & Ho (2019); Lu & Ramamurthy (2011); Makumbe & Washaya (2022).
Commercial Bank Performance	Q25-Q30	Joensuu-Salo & Matalamäki, (2023); Lämsiluoto et al., 2019; Hvolby & Thorstenson (2001); Kettinger et al. (1997); Melville et al. (2004); Powell, (1995).

3.7.4. Pre-Testing the Study Instrument

According to Hjorthaug Urstad et al. (2020), pretesting a questionnaire involves the evaluation of a study instrument before administering it to participants. According to Ikart (2019), this is achieved by subjecting the instrument to expert review for the detection of any deficiencies with the instrument before deploying it to the chosen sample. Consequently, this study questionnaire was presented to three PhD scholars (including the supervisor) to review for clarity, understandability, and identification of any duplications, as supported by Grimm (2010). Some

amendments were then applied to the questionnaire following the review. The final questionnaire was thus a product of the said review process.

3.7.5. Study Instrument Administration

Letters requesting permission to have the bank's employees participate in the survey were sent to the participating banks. The letters indicated the timeframe of the study and what the study was about. Once permission was granted, the URL link to the study instrument was emailed to the participants, and weekly reminders were sent. Other platforms, such as social media, WhatsApp, and LinkedIn, were used to distribute the link. The survey was open for two months, after which the responses were extracted and manipulated using the Statistical Package for the Social Sciences (SPSS).

3.8. Reliability and Validity

The concepts of reliability and validity hold great significance in the realm of research. Reliability, as defined by Rozali et al. (2022), pertains to the consistency, stability, and repeatability of study outcomes achieved through the utilisation of the same research instrument. Multiple approaches exist for assessing instrument reliability, including reliability coefficients, internal consistency, alternate forms of reliability, inter-rater reliability, and Cronbach's alpha (Josefeena & Marudhar, 2018). In the current inquiry, the instrument reliability was assessed using Cronbach's alpha. This determination was based on scholarly literature, wherein it is generally agreed that a value below 0.7 is considered poor, an exact value of 0.7 is deemed acceptable, and a value above 0.7 is considered good (Alan et al., 2020; Kilic, 2016).

Similarly, validity was measured for the instrument used in this study. This is because validity is accepted as the most crucial measurement attribute of a study instrument, as it is key to

achieving results that are accurate and meaningful (Kimberlin & Winterstein, 2008). The study instrument's validity is considered the level to which it measures what it is supposed to quantify (Alan et al. 2020). In line with Romli (2023), the metrics that were applied to assess validity in this study were the average variance extracted (AVE), composite reliability (CR), and discriminant validity (DV). Most importantly, to achieve overall validity, the questionnaire items were all adapted from various past valid inquiries (Shehadeh et al., 2023). The reason for utilising various measurements from diverse sources is to minimise common method variance (CMV). This resonates with Harold et al. (2020), who advocate for the use of measures from different sources for all variables.

Goedegebuure (2023) suggests a valuable recommendation to address response bias on constructs by advocating the use of multiple statistical tests rather than relying on a single test. Consequently, in this particular study, factor analysis was used as a means of comprehensively examining the phenomena at hand. It is worth noting that previous studies (Martínez-Carrea et al., 2021) have taken a similar approach in their attempts to tackle response bias, thus providing a valuable precedent for the adoption of this methodological strategy in the current investigation. In light of the consistent positive outcomes observed in prior research, it is evident that this approach holds substantial merit and is worthy of implementation in the present study.

3.9. Operational Definition of Variables

A quantitative investigation encompasses study variables or constructs. These constructs represent the components that were quantified to address the study inquiries and achieve the research objectives. According to Rana et al. (2021), study variables are explained as the distinct attributes or characteristics of discernible units, individuals, groups, or organisations that are quantified, manipulated, or regulated to examine a given study hypothesis or address a research

question. These constructs are categorised as independent variables (also called causal or predictor variables), dependent variables, as well as mediating or moderating variables (Agresti & Kateri, 2022). Although these variables possess functional delineation, there is a need to provide operational definitions for all the study variables. This assists in providing contextual meaning to study variables.

An operational definition of a variable is perceived as the process of delineating variables in a manner that enables the quantification of the said variable in that particular study (Chittaranjan & Andrade, 2021). The operationalisation of variables entails establishing their definitions in a manner that facilitates precise measurement. In other words, this involves the reduction of nebulous concepts to make them practically measurable (Sekaran & Bougie, 2016). Operational definitions have been deemed crucial in this research because they contribute to achieving uniformity and dependability in the study while also assisting in its conceptualisation and design (Mthembu, 2018). Consequently, this study identifies digital transformation, employee productivity, IT capability, IT Innovation, and commercial bank performance as the constructs to be assessed, thus necessitating the provision of an operational definition for each.

3.9.1. Digital Transformation

The Operationalisation of this construct involved the adaptation of measurement scales utilised and tested in previous studies, which were determined to be significant and pertinent to the factors of DT. In this study, the measurement of DT was undertaken using a scale with five items following the approach employed by Masoud and Basahel (2023). The impact of DT on various variables in this study was assessed based on its ability to drive business and incorporate change through leveraging and merging digital tools like big data analysis, cloud computing, mobile applications, and social networking platforms, as well as by supporting DT progress

through IT assets (DT1, DT2, and DT3) (Shehadeh et al., 2023). The impact of DT on performance in this study was analysed in the context of how the DT efforts of commercial banks are perceived to enhance their current business, improve customer understanding, and enhance the performance of existing products (DT4, DT5, and DT6). These results align with the conclusions of several previous studies (Aral & Weill, 2007; Masoud & Basahel, 2023; He et al., 2021) that have tested and verified the validity of these metrics.

The items, which are displayed in Table 6, were requested to receive responses from participants. These responses were documented using a 5-point Likert scale, which ranged from strongly disagree (1) to strongly agree (5). It should be noted that the construct of DT, as stated by Shehadeh et al. (2023), is not being treated as a multi-dimensional construct. Data for this construct were collected in Section B of the questionnaire. This is aligned with the several hypotheses in the study that claim a positive and significant relationship between DT and various constructs of employee productivity, IT capability, IT innovation and commercial bank performance (CBP). DT is conceived as how the bank drives new business methods built on innovations such as big data analysis and other social media platforms, utilising them to instigate transformation. The use of these technologies internally, as well as using them to understand customers and use technology to improve performance, constituted the overall operational definition of this construct. The use of this operational definition lines up with prior valid studies (Masoud & Basahel, 2023; He et al., 2021; Shehadeh et al., 2023). More importantly, the construct measurements ensured that the data thus collected answered the study's question 5 (Chen et al., 2021; Qi & Xiao, 2020).

Table 6*Digital Transformation Measurement Scales*

Abbreviation	Operational Measurement Scale	Literature Support
DT1	Our bank is pushing new business methods based on technologies such as big data analytics and social media platforms.	
DT2	Our bank is combining digital tools such as social media, big data analytics, cloud, and mobile technologies to facilitate change.	Aral & Weill, (2007);
DT3	Our bank is transitioning toward the utilisation of digital technologies such as big data analytics, cloud, mobile, and social media platforms.	Masoud & Basahel (2023); He et al. (2021);
DT4	The bank's IT application portfolios have facilitated the achievement of digital transformation by the bank.	Shehadeh et al. (2023).
DT5	The bank employs various digital tools, including data analytics, social media, and cell phone and embedded services, to know customers better.	

3.9.2. Employee Productivity

Employee productivity in the context of DT in commercial banks has been investigated through various studies in the literature (Cianci et al., 2024; Singgih et al., 2024). Such valid studies provided the basis for the operational definition of employee productivity in this study. Marx et al. (2021) emphasise that it is essential for the dimensions in a study construct to align with the typical practices within an organisation. As a result, the questions posed should not be specific to a particular time or context. Therefore, the questions asked in this study were based on the usual habits and characteristics of commercial banks and their employees.

Consequently, employee productivity in the context of this study was illuminated by the extent to which the commercial bank's employees took part in the DT program for the bank. This is important because when employees fully participate in the bank's DT journey, they are likely to impact the performance of the bank as well as improve their DT skills (Shwedeh et al., 2023). Furthermore, the nebulous employee productivity variable was reduced to a practically measurable

variable by considering how it aids employee motivation and enhances digital leadership in commercial banks (Nguyen, 2023). This is because prior valid studies have shown that DT has the potential to improve employee efficiency, result in upskilled workers and upgrade general competence levels (Brown et al., 2020; Khadragy et al., 2022; Ridwan et al., 2020).

This construct was also measured by how the commercial bank's IT programs result in improved work efficiency, assist employees in completing tasks faster and by how easy it is for them to understand the deployed ICTs (Cianci et al., 2024; Nguyen, 2023). According to several studies (Adhikari et al., 2022; Almustafa et al., 2023; Ly, 2024; Gun et al., 2024; Widodo et al., 2024), where employees leverage technologies that come with DT in the complex commercial banking sector, the time taken to complete tasks is significantly reduced, thereby improving performance. In addition, if they understand these nascent technologies, they will have a competitive edge, thus resulting in improved productivity. More importantly, this construct was also measured by how DT will result in digital overload, thereby increasing employee stress, thus impacting their productivity. Prior studies have hinted that DT may result in negative employee productivity because of the attendant stress (Kadur & Rajshekar, 2022).

The data that was utilised in the process was acquired through the implementation of a survey that employed a questionnaire. Previous reputable investigations (Kump et al., 2019; Marx, 2021; Wiesböck, 2019) have adopted a similar methodology. The survey incorporated a questionnaire consisting of closed-ended questions about the construct of employee productivity. The specific measures for this construct are shown in Table 7 below. As suggested by Cheng et al. (2023), the participants indicated the degree to which they agreed with each statement using a five-point Likert scale.

Section B(ii) considered the construct of employee productivity (EP) as it interacts with DT and commercial bank performance. This satisfied Sekaran and Bougie (2016), who posit that answers to the associated research questions can only be found if the respective construct can be measured. This construct was measured using measurement scales adapted from prior valid studies (Almustafa et al., 2023; Cianci et al., 2024; Ly, 2024; Nguyen, 2023; Gun et al., 2024). This variable was therefore conceptualised as the degree to which DT ensures employees take part in the DT journey of the bank, and how it enhances motivation, efficiency, competence and digital leadership.

Table 7

Employee Productivity Measurement Scales

Abbreviation	Operational Measurement Scale	Literature Support
EP1	The employees of the firm fully participate in the DT of the bank.	
EP2	The DT in our bank enhances employee motivation, knowledge, competence and digital leadership.	Almustafa et al., (2023);
EP3	The ICT resources from our bank's DT program improve work efficiency.	Cianci et al. (2024); Ly, (2024); Nguyen (2023); Gun et al., (2024)
EP4	I can easily understand and use new ICT deployed by the bank.	
EP5	The ICTs used by our bank enable me to accomplish my tasks faster.	

To avoid conceptual ambiguity, this study operationalised employee productivity within the context of digital transformation as digital productivity. This construct reflects employees' perceived effectiveness in executing work tasks using new ICT systems introduced through the bank's digital transformation programme. Rather than measuring generic organisational performance appraisal outcomes, the scale specifically captures DT-enabled improvements in

work efficiency, task completion speed, ease of using new digital tools, employee competence, and participation in DT-related processes.

This operationalisation is consistent with prior technology-focused performance studies, which conceptualise employee productivity as productivity and work effectiveness under digitalised working environments (Almustafa et al., 2023; Cianci et al., 2024; Ly, 2024; Nguyen, 2023; Gun et al., 2024).

3.9.3. IT Capability

The operationalisation of this construct was achieved through the adaptation of items that had previously been validated for the same construct. Following the perspective of Nwankpa and Roumani (2018), IT capability has been conceptualised as a construct that encompasses three dimensions, namely “IT infrastructure, IT business spanning, and IT proactive stance” (p.3). The disintegration of the IT capability construct was deemed significant in the context of this study because it facilitates accurate measurement of this construct.

The present study assessed the extent of IT capability by considering the IT infrastructure aspects of commercial banks. This pertains to the bank's investment in portfolios of IT applications (IT1) and the superiority of its data management services and IT architectures compared to its competitors (IT2). This aligns with the results of Ajigini (2023), who employed the same measures to evaluate digital transformation within the financial service sector of South Africa. Furthermore, IT capability is evaluated by considering the breadth of IT involvement in the bank's business operations (Nwankpa & Roumani, 2018). This dimension examines whether the bank integrates strategic planning and IT (IT3) and how the bank's IT systems contribute to achieving exceptional performance (IT4). The final dimension addresses the proactive stance of the bank's IT, which assesses its ability to acquire, assimilate, and transform IT knowledge to

enhance its effectiveness (IT5), as well as the impact of IT on improving the bank's performance (Lu & Ramamurthy, 2011). Collectively, these dimensions interact and influence how commercial banks can leverage their IT investments to attain superior performance.

Table 8

IT Capability Measurement Scales

Dimension	Abbreviation	Operational Measurement Scale	Literature Support
IT Infrastructure	IT1	The bank invests in IT application portfolios and the latest technology to facilitate digital transformation.	Ajigini (2023); Bharadwaj, (2000); Nwankpa & Roumani, (2016); Lu & Ramamurthy, (2011); Yum (2000)
	IT2	The bank's data management services and architectures are superior to the competition.	
IT Business Spanning	IT3	The bank always combines its business strategic planning and IT planning to achieve digital transformation.	Ajigini (2023); Bharadwaj, (2000); Nwankpa & Roumani, (2016); Lu & Ramamurthy, (2011); Yum (2000)
	IT4	Our bank's IT helped to improve Organisational performance in the last three years.	
IT Proactive Stance	IT5	The bank continually endeavours to enhance the effectiveness of IT use to accomplish digital transformation.	

The construct of IT capability and how it relates to DT and bank performance are addressed in subsection (iii) of the questionnaire. IT capability was operationalised by considering the banks' investment in IT application portfolios. It also considered how the bank's data management services and architecture are superior to the competition. Further, the construct is operationally defined by how the bank integrates strategic planning and the achievement of DT. Insofar as performance is concerned, the construct considered the impact of IT on operational performance, how the bank uses new ways to achieve DT, and how superior IT assisted the bank in achieving its objectives. These measuring constructs lined up with various prior studies (Nguyen-Viet & Nguyen, 2023; Nwankpa & Roumani, 2016; Yu et al.,

2022). More importantly, the study considered this adequate as it ensured that it provided answers to research questions 3 and 4 (Mogoale et al., 2021; Thuy, 2020).

Responses to the items mentioned above were gathered through the utilisation of a meticulously designed questionnaire that featured queries with closed-ended attributes in this section. Each dimension inherent to the subject matter under scrutiny was subjected to measurement via the process of calculating the average scores attained concerning the said dimensions, thereby ensuring a comprehensive and holistic representation of the data.

3.9.4. IT Innovation

This study hypothesised that DT impacts the IT innovation of commercial banks and that the latter influences commercial banks' performance (Alrawashedh & Shubita, 2024; Alshammari, 2023; Huang & Yang, 2019; Lahiri, 2022). Consequently, this investigation examined IT innovation in terms of DT enabling superior quality innovations, enhancing IT staff creativity, and the constant production of new products (Nwankpa & Roumani, 2016). Further, this construct considered the impact of IT innovations' ability to improve commercial bank product quality, how they push the banks to have a marketing edge, as well as improve customer service (Makumbe & Washaya, 2022). Previous research (Azubuike, 2013; Khin & Ho, 2019) employed similar metrics in measuring and operationalising this metric. Table 9 below gives a breakdown of the measurement items defining this construct in the context of this study.

Table 9*IT Innovation Measurement Scales*

Abbreviation	Operational Measurement Scale	Literature Support
ITN1	The bank's DT produces IT innovations of superior quality to the competition.	
ITN2	At this bank, our IT staff are encouraged to be the most creative IT department in the commercial banking sector.	
ITN3	The bank's DT program allows the bank to produce new products constantly.	Azubuike, (2013); Nwankpa &
ITN4	Our IT innovations increase the quality of current products.	Roumani, (2016);
ITN5	The bank's IT innovations give it an edge in marketing over the competition.	Khin & Ho, (2019).

To assess the variable of IT Innovation, a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5) was determined to be suitable for this investigation, given its previous application in comparable studies on the identical construct (Khin & Ho, 2019). To obtain the ultimate score for this construct, the geometric mean for the scales was applied.

Subsection (iv) investigated the IT innovation (ITN) construct as it relates to DT and commercial bank performance. This was defined by the way the bank's DT institutes superior innovations, creative IT staff and the constant development of new products. Furthermore, the construct is seen as how IT innovation improves product quality and improves marketing and customer service. These measurement scales are sufficient for this study because several prior valid studies used a similar approach (Azubuike, 2013; Khin, S., & Ho, T.C., 2018; Lu & Ramamurthy, 2011; Makumbe & Washaya, 2022).

3.9.5. Commercial Bank Performance

A thorough examination of the existing literature led to the study incorporating valid performance measures from various researchers (Hvolby & Thorstenson, 2001; Kettinger et al., 1997; Melville et al., 2004; Powell, 1995). Subsequently, these measures were modified to

conform to the particular context of this study. The operationalisation of bank performance was executed as a two-dimensional variable. This is because while performance is typically evaluated in financial terms, it also encompasses non-financial aspects (Khin & Ho, 2019). Consequently, this inquiry assessed both monetary and non-monetary dimensions to obtain a comprehensive measurement of the construct. These specific items are presented in Table 10.

Table 10

Bank Performance Measurement Scales

Dimension	Abbreviation	Operational Measurement Scale	Literature Support
Financial	CBP1	Over the previous three years, our bank's performance as evaluated by the return on investment (ROI) has been better than the competition.	Joensuu-Salo & Matalamäki, (2023); Länsiluoto et al., 2019; Hvolby & Thorstenson (2001); Kettinger et al. (1997); Melville et al. (2004); Powell, (1995).
	CBP2	Over the past 3 years, our bank's expenses and costs have been lower than our competitors.	
	CBP3	Over the past 3 years, our bank's net profit has been higher than our competitors due to digital transformation initiatives.	
	CBP4	The bank experienced revenue growth that exceeded the competition during the past three years.	
Non-Financial	CBP5	The bank's digital transformation initiatives have seen an increase in customer satisfaction over the past 3 years.	

The financial performance of commercial banks was perceived to encompass various aspects, such as the bank's return on investment, cost reduction, and net profit. On the other hand, non-financial metrics took into consideration the bank's processes, customer satisfaction, and market share growth. In similar studies, several authors (Joensuu-Salo, S., & Matalamäki, 2023; Länsiluoto et al., 2019) have employed and examined these elements, revealing their significance and relevance in performance evaluation. Consequently, these measures were adapted for implementation in the present study.

Commercial bank performance was operationalised using both financial and non-financial performance indicators, consistent with the literature which acknowledges that organisational performance in banking cannot be accurately captured through financial indicators alone. Financial performance indicators such as return on investment (ROI), cost efficiency, and profitability were used to reflect the bank's short- to medium-term financial outcomes, while non-financial indicators such as process efficiency, customer satisfaction, and market share growth were included to capture strategic and operational performance outcomes that influence long-term competitiveness. In line with prior empirical studies, the study treated commercial bank performance as a latent construct measured through multiple observed indicators (items CBP1-CBP5).

Consequently, a composite performance index was not manually constructed; instead, overall commercial bank performance was modelled using Structural Equation Modelling (SEM), where the individual items collectively represent the underlying performance construct and contribute to the estimation of the measurement and structural models. In this study, CBP2 represents cost efficiency (lower operating costs/expenses), while CBP3 represents profitability (net profit), both of which are standard financial performance dimensions in commercial banking.

Respondents were required to evaluate their bank's performance over the previous three years using a questionnaire with closed-ended questions rated using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly disagree). An arithmetic mean for each dimension was computed (Marx et al., 2021).

Commercial banking performance was measured in Section B(v) of the questionnaire, and this was operationalised by measuring an increase in return on investment over three years, a reduction in expenses in relation to competition, an upsurge in customer satisfaction, growth in revenue, and an increase in market share over a period of three years. Several prior studies

(Joensuu-Salo & Matalamäki, 2023; Lämsiluoto et al., 2019) have applied these measurements to the construct of related studies, thereby justifying their use in this study. The use of this construct in this study was appropriate because it assisted in answering the questions connected with hypotheses 4,5,6,7, and 8. The data collected in Section B were analysed as discussed in the following section.

3.10. Data Collection and Analysis

Data collection is seen as the cornerstone of any empirical inquiry as it determines the relevance, quality, quantity, and integrity of the results of that study (Mwita, 2022). This section, therefore, provides insight into the approach that was used to collect and analyse the data. Because this study seeks to inquire about the influence of DT on banking performance in Zimbabwe, the data were collected from Zimbabwean commercial banks' employees.

3.10.1. Data Collection

The study utilised primary data gathered using an online, asynchronous, self-administered questionnaire. Primary data was appropriate for this inquiry, as it ensured that the study objectives were met by allowing the researcher to directly measure the commercial bank employees' perceptions regarding DT, IT capability, IT innovation and the mediation of IT capability. Digital transformation and bank performance were also considered to be best addressed by firsthand information from the respondents, which, as Banerjee (2019) observes, provides reliable information. The primary data in this study were adequate, as they allowed the collection of data specific to the research objectives. In addition, several nascent studies in a similar field (Hakizimana et al., 2023; Hariri, 2023; Xinran et al., 2022; Zhu & Jin, 2023) used primary data, thus justifying its adoption in this study.

To complement primary data as well as enhance the study findings' robustness, secondary data was also incorporated (Tricot, 2022). Specifically, the study utilised objective financial performance data (Return on Assets -ROA) collected from the 13 commercial banks. The secondary data was used to triangulate the perceptual performance measures obtained from the survey, mitigating potential common method bias. This resulted in the provision of an objective benchmark for validating the survey results. A structured Secondary Data Collection Sheet (Appendix I) was developed and employed for each bank for the period 2022 to 2024, sourced from the commercial banks' published annual reports. The data collected was matched with the time frame referenced in the survey's performance questions.

3.10.1.1. Aligning Data Collection to the Study Hypotheses

The process of aligning data collection to study hypotheses is achieved through the design of valid and reliable data-gathering tools that are linked to study questions or hypotheses (Kwok et al., 2022). This is important as it will ensure that data analysis errors are minimised and address bias, thereby ensuring that the study follows a trajectory that leads to success, thus achieving accuracy and integrity of study results (Musu et al., 2020).

The approach to align data collection with study hypotheses was used in this study because previous valid studies applied a similar approach (Joensuu-Salo & Matalamäki, 2023; Kump et al., 2019; Shehadeh et al., 2023; Wiesbick & Hess, 2020). This entailed linking specific questions on the study tool with a specific hypothesis and the corresponding objective. This Goal, Question Metric (GQM) ensures that respondents will provide responses that address the study objectives. Table 11 demonstrates how the collected data aligned with the research questions and hypotheses, so as to achieve the study objectives. For example, hypothesis 1 was linked to the questions indicated, and these addressed objective number 1.

Table 11*Aligning Data Collection and Analysis to Hypotheses and Study Questions*

Hypothesis Number	Null Hypothesis	Questions (Section B)	Objective Number
1	There is no significant relationship between DT and the performance of commercial banks in Zimbabwe	25,26,27,28,29,30	1
2	There is no significant relationship between DT and the IT capability of Zimbabwean commercial banks	3, 13	2
3	There is no significant relationship between DT and the productivity of employees in Zimbabwean commercial banks	7,8,11	3
4	There is no significant relationship between DT and IT innovation by Zimbabwean commercial banks	15,19,21	4
5	There is no significant relationship between IT innovation and the performance of Zimbabwean commercial banks	14,20,22,23,24	5
6	There is no significant relationship between IT capability and the performance of Zimbabwean commercial banks.	14,16,18	6
7	There is no significant relationship between employee productivity and the performance of commercial banks in Zimbabwe	10,12	7
8	IT capability does not mediate the relationship between DT and commercial bank performance in Zimbabwe	1,2,4,5,6,9,17	8

3.10.1.2. Data Collection Steps

The data collection steps were informed by the need to attain validity, dependability, and replicability of the research. Surucu and Maslakci (2020) posit that achieving these qualities in research improves the trustworthiness or credibility of the study results, and by ensuring

replicability, rigour, and reliability, they can be attained. In that regard, this study was carefully planned and used the following process to collect data:

i. Data Collection Step 1: Study Design and Protocol Development

The researcher took the necessary steps to guarantee that the study protocol and design were clearly defined. This involved the establishment of the study objectives, questions, and hypotheses as outlined in chapters 1 and 2. This study followed a survey design undergirded by a questionnaire as the study tool. Only primary data would be collected from the participating banks' employees. The study population was identified as employees in the financial services sector, while the sampling frame was narrowed down to current employees of Zimbabwean commercial banks. Stratified random sampling was consistent with the design and study objectives. That having been done, the following stage involved adherence to ethical principles, and this required that the researcher comply with the university's study procedures, hence step 2.

ii. Data Collection Step 2: Completion of Relevant Unicaf Forms

The first step entailed establishing the data collection rules as outlined by Unicaf University. This required that the researcher design a data collection tool that would be appropriate for the study. This was followed by the completion of the various forms, which included the Research Ethics Application form for doctoral studies, the Informed Consent form, and the Gatekeeper letters. These were submitted to the Unicaf Research Ethics Committee (UREC) for scrutiny and approval. While it is a requirement to also submit a Guardian Consent Form, this study did not involve any participants who would not make their own decisions and would require guardian consent; thus, this was not part of the submitted forms. The UREC approved the study, and this necessitated the recruitment of gatekeepers.

iii. Data Collection Step 3: Gatekeeper Recruitment

A significant and practical challenge in quantitative studies has been identified as the difficulty in gaining access to the population of interest; thus, the researcher needs to identify key personnel who will allow them access, and these are called 'gatekeepers' (Casteel & Bridier, 2021). This study identified gatekeepers in the thirteen commercial banks, and these were the human resources managers. Gatekeeper letters were drafted (Appendix D), approved by UREC, and sent to the respective banks. The Research Council in Zimbabwe also provided written approval allowing the study to proceed. After all the approvals were granted, the researcher proceeded to the next stage.

iv. Data Collection Step 4: Participant Recruitment

The potential participants were identified as all the current employees of the thirteen commercial banks, and according to the RBZ (2024), they numbered 5606. Using G*Power software, a minimum sample size of 92 participants was established, and by applying the KMT, an actual sample size of 361 participants was then implemented. Using random sampling, the research tool was deployed using online platforms including email, LinkedIn, Facebook, and Twitter. Only current commercial bank employees working in Zimbabwe were considered. Their geographical location within Zimbabwe was of no consequence, given that online methods were being used. All genders were given an equal chance to participate. At this stage, informed consent was sought by distributing the informed consent form. In addition, the goals, methods, advantages, and disadvantages of the study were explained to the participants. Consequently, each participant provided a written agreement attesting to their voluntary involvement.

v. Collection Step 5: Deployment of the Study Tool

As indicated earlier, the Unicaf-approved questionnaire (Appendix G) was the tool deployed in this study to collect data from the study participants. This tool was piloted on 30 participants who did not take part in the final survey, and it was also reviewed by 3 other PhD holders to enhance the reliability and validity of the instrument. The tool was an electronically distributed, self-administered questionnaire.

The study questionnaire was deployed electronically using the stratified random sampling method. This was to ensure that the number of questionnaires sent was in proportion to the number of employees in each bank. Table 12 below shows the minimum number of questionnaires that were targeted at each bank. The minimum number of questionnaires sent to each bank was arrived at by dividing the bank's employees by the total number of employees for all banks and multiplying this by the sample size as determined by the KMT (361 in this case).

Table 12

Minimum Number of Questionnaires per Bank

Bank	Number of employees	Minimum Number of Questionnaires
AFC Bank	553	37
BancABC	63	5
CBZ	1094	70
FBC Bank	426	27
First Capital Bank	545	35
Metbank	89	5
Nedbank	320	21
NMB	425	27
Stanbic	519	33
FBC Crown	236	15
Steward Bank	440	28
ZB Bank	666	43
Ecobank	230	15
Total	5606	361

Table 12 presents the minimum number of questionnaires allocated to each bank using proportional stratified random sampling. Because the population size of each commercial bank differed, the number of distributed questionnaires was calculated in proportion to each bank's share of the total population of 5,606 employees. This ensured that larger banks received more questionnaires and smaller banks received fewer, thereby improving representativeness across strata. Although the planned sample size was 361, based on the Krejcie and Morgan Table, the final number of valid responses received was 310 due to non-responses and incomplete submissions. Despite this, the realised sample (310) remained well above the minimum threshold of 92 required by the G*Power analysis, thus retaining adequate statistical power for SEM analysis.

The link to the questionnaire was emailed and sent to the respondents via WhatsApp and LinkedIn. The survey was open for one month. Thereafter, the responses were extracted and loaded into SPSS version 26.

vi. Data Collection Step 6: Data Handling and Analysis

Because this study employed a cross-sectional survey, the participants were given two months to complete the questionnaire from April 1 to April 30. Constant follow-ups were made to improve the response rate (Smith et al., 2019). Such follow-ups included resending the questionnaire where responses were yet to be received. After being received, the data was stored in encrypted folders to maintain confidentiality. To address the research objectives, this data was analysed using descriptive statistics, inferential statistics, and structural equation modelling using SPSS. A detailed discussion of how the data was analysed is given in the following section.

3.10.2.Data Analysis

Data analysis refers to the transformation of raw data into meaningful information to answer study questions (Thompson, 2022) using various tools. The process involves data verification, using relevant analysis procedures, and interpretation of the ensuing results to draw conclusions. However, to analyse data, the same needs to go through processing using various tools. This study collected data on five constructs (Digital Transformation, Employee Productivity, IT Capability, IT Innovation, and Commercial Bank Performance). The data collected was processed using SPSS version 26. The descriptive statistics for the demographic section were automatically generated by the online platform (Google Forms) that was used to deploy the questionnaire. This lines up with such studies as Diener and Špaček (2021), who carried out studies in a similar domain.

In accordance with recent trends in the study of digital transformation and bank performance (Huang, 2023; Íslatince, 2023; Marx et al., 2021; Shehadeh et al., 2023; Uribe-Linares et al., 2023; Xinran et al., 2022; Zhu & Jin, 2023), the statistical tests that were applied in this study were descriptive statistics, inferential statistics such as structural equation modelling to determine relationships between study constructs, and Cronbach's Alpha to ascertain study tool reliability. These tests were helpful in this study as they ensured the reliability, validity, and generalizability of the results (López et al., 2022) on the impact of digital transformation on commercial bank performance.

The data collected on all the above constructs was ordinal, meaning that it could be categorised and ranked, but the actual interval between these ranks cannot be measured. Consequently, Likert-type questions were formulated with scales categorised as follows: 1 = Strongly Disagree, 2 = Disagree, 3 = Uncertain, 4 = Agree, 5 = Strongly Agree. This data was

analysed using SPSS. Confirmatory Factor Analysis (CFA) was used, given that this variable has multiple-item rating scales, so it is important to assess their adequacy and validity (Pristiyono et al., 2022). In addition, CFA assisted in determining the correlation between the independent and dependent variables (Huang, 2023). The adoption of these approaches is supported by prior studies (Rios-Lama & Vargas-Merino, 2023) that have shown them to be valid tests within the quantitative paradigm to study the correlation, cause, and effect, as well as relationships between study variables.

For each hypothesis, a careful selection of the most appropriate statistical test was made, taking into account the nature of the hypotheses as well as the variable constructs involved. Furthermore, the researcher considered the assumptions of each test to ensure the relevance of each test to be undertaken. The SEM was performed on the gathered data. This conforms to prior studies such as Rios-Lama and Vargas-Merino (2023). Further assumptions include that the variance in the population is homogenous, that observations at each bank are independent of each other, and that the sample size is large, as is the case in this study. In testing these hypotheses, the level of significance was set at 0.05. If the results of the tests were greater than the critical value, then the null hypothesis was to be rejected. Alternatively, if the calculated value was below the critical value, the null hypothesis was accepted while the alternative hypothesis was rejected.

3.10.2.1. Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) was employed in this study to test both the measurement model and the structural relationships among the constructs. SEM is appropriate for theory-testing research because it enables the simultaneous estimation of multiple relationships between latent constructs while accounting for measurement error. It is a cocktail of multivariate confirmatory techniques that enables the evaluation of a model's goodness of fit (Selickaitè et al.,

2019). However, SEM relies on several statistical and modelling assumptions. Prior to running the SEM analysis in AMOS, the researcher ensured that the core assumptions for SEM were reasonably satisfied, as outlined below.

i. Multicollinearity

SEM assumes that the predictor constructs are not excessively correlated to the extent that they create multicollinearity problems, which may distort parameter estimates and reduce the interpretability of individual construct contributions. In this study, multicollinearity was assessed at two levels to ensure the stability and validity of the SEM estimates.

Firstly, the study evaluated indicator-level multicollinearity through the examination of factor loadings within the measurement model during Confirmatory Factor Analysis (CFA). As per guidelines established in prior studies (Hair et al., 2021), indicators on the same factor with loadings exceeding 0.95 show that they are highly correlated, thus indicating redundancy. In all the cases, the CFA results in Table 13 confirmed that all standardised factor loadings for the observed variables on their respective latent constructs were substantive (ranging from 0.53 to 0.90) yet below 0.95. This indicated that no individual indicator was excessively correlated with either its latent variable or with others on the same factor.

Secondly, latent construct level multicollinearity was assessed through the examination of the correlations among latent variables and by testing for discriminant validity. Correlations above 0.9 suggest that latent constructs are measuring the same thing. As can be seen from the correlation matrix among the latent variables (Table 13), most correlations were below this level. More formally, discriminant validity was established using the Fornell-Larcker criterion, where the square root of the Average Variance Extracted (AVE) for each construct was greater than its highest correlation with any other construct. This confirmed that the constructs—Digital

Transformation, Employee Productivity, IT Capability, IT Innovation, and Commercial Bank Performance—were statistically distinct and that multicollinearity did not pose a threat to the integrity of the structural model.

Based on the above diagnostic evaluations, the data were deemed sufficient and suitable for SEM as multicollinearity was not present at a level that would compromise the estimation or interpretation of structural path coefficients.

Table 13

Factor Loadings for Latent Variables

Observed Variable	Latent Variable				
	1	2	3	4	5
Digital Transformation	0.65	0.69	0.70	0.82	0.75
IT Capability	0.71	0.86	0.90	0.80	0.87
Employee Productivity	0.54	0.55	0.82	0.57	0.76
IT Innovation	0.85	0.53	0.81	0.74	0.81
Commercial Bank Performance	0.62	0.78	0.85	0.72	0.78

ii. **Sampling adequacy and sample size**

SEM requires a sufficiently large sample for stable estimation, reliable standard errors, and meaningful model fit testing. In line with widely accepted SEM guidance (Wang & Rhemtulla, 2021), a minimum sample size of 150 is considered adequate for most SEM applications. In this study, 310 valid questionnaires were received and analysed, which exceeds the recommended minimum and supports the robustness of SEM results.

iii. **Multivariate Normality**

SEM using Maximum Likelihood Estimation (MLE) assumes that the observed data reasonably approximates multivariate normality. To assess this assumption, univariate normality

was checked for each of the 25 observed indicators (measurement items) using the Shapiro-Wilk test.

Table 14

The Shapiro-Wilk Test

	Statistic	df	Sig.
DT1	.986	95	.211
DT2	.924	95	.131
DT3	.973	95	.217
DT4	.936	95	.121
DT5	.965	95	.211
IT1	.988	95	.161
IT2	.937	95	.151
IT3	.925	95	.231
IT4	.970	95	.111
IT5	.908	95	.121
ITN1	.972	95	.211
ITN2	.992	95	.131
ITN3	.991	95	.141
ITN4	.999	95	.151
ITN5	.902	95	.121
CBP1	.987	95	.111
CBP2	.928	95	.101
CBP3	.995	95	.181
CBP4	.906	95	.171
CBP5	.926	95	.151
EP1	.979	95	.141
EP2	.901	95	.211
EP3	.945	95	.111
EP4	.909	95	.131
EP5	.939	95	.221

a. Lilliefors Significance Correction

The results detailed in Table 14 confirmed that the significance (Sig.) values for all the indicators were greater than the alpha level of 0.05 (ranging from .101 to .231). This substantiates that the null hypothesis of normal distribution cannot be rejected for any individual item. While the Shapiro-Wilk test is sensitive to sample size, the consistent non-significant results across all

items, combined with an adequate sample size ($N=310$), support the conclusion that the data did not exhibit severe departures from univariate normality. This justifies the use of MLE for model estimation.

iv. Missing data

SEM assumes that missing data are minimal or that missingness occurs at random (in other words, missing completely at random or missing at random). Prior to analysis, the dataset was screened for missing values. To ensure data completeness, the study employed the listwise deletion approach (Amusa & Hossana, 2024). Only complete and usable responses were retained for analysis, thereby ensuring that the SEM estimation process was not compromised by incomplete cases. Rather, this approach helped maximise reliability of the study results while at the same time reducing the potential biases due to data that is not complete.

v. Model Specification

A key assumption in SEM is that the researcher specifies the model correctly, meaning that the conceptual model is theoretically justified and includes the key paths and constructs necessary to explain the phenomenon under investigation. In this study, the hypothesised SEM model was derived from the underpinning theoretical framework (TAM, DCT and DOF) and the reviewed empirical literature. This ensured that both the measurement model (construct-item relationships) and the structural model (relationships among constructs) were theoretically grounded and aligned with the research objectives and hypotheses.

vi. Model Fit Hypotheses

Model fit testing in SEM is conducted to determine whether the hypothesised model adequately represents the observed data (Kline, 2023). Consistent with SEM practice, the following model fit hypotheses were applied:

H₀: The hypothesised model fits the observed data adequately as indicated by $CFI \geq 0.95$, $CMIN/Df \leq 3$, $NFI \geq 0.95$, $IFI \geq 0.90$, $TLI \geq 0.95$, and $RMSEA \leq 0.8$.

H₁: The hypothesised model does not fit the observed data adequately ($CFI < 0.95$, $CMIN/Df > 3$, $NFI < 0.95$, $IFI < 0.90$, $TLI < 0.95$, and $RMSEA > 0.8$).

To evaluate these hypotheses, multiple fit indices were considered rather than relying solely on the Chi-square statistic, because the Chi-square is sensitive to sample size. Model fit was therefore assessed using indices such as Chi-Square divided by the degree of freedom (CMIN/Df), NFI (Normed Fit Index), IFI (Incremental Fit Index), TLI (Tucker-Lewis Index), Comparative Fit Index (CFI) and the RMSEA (Root Mean Square Error of Approximation), using recommended thresholds to determine acceptable and good model fit. The results, which confirmed that the model was a good fit, are discussed in the next chapter.

3.11. Study Procedures and Ethical Assurances

This section outlines how the study was conducted regarding the study respondents. It discusses the participant risks and the attendant ethical assurances. The section shows how the study achieved research ethics.

3.11.1. Participants' Risks

The phase of data collection is regarded as highly sensitive and critical in the study process, given that it entails the researcher obtaining data from human subjects. Thus, it is vital to consider the risks that may be thrust on the respondents, given that this may have significant consequences for the study subjects (Hensen et al., 2021). Several prior studies have identified breach of confidentiality, undue influence, physical or psychological discomfort, and adverse effects from interventions as some of the risks that study participants may be exposed to (Moore et al., 2022; Pieper & Thomson, 2020; Xu et al., 2020). The researcher, therefore, assessed these potential risks,

and it was deemed that the risk was minimal. That as it may, even in cases of minimal harm, studies need to conform to standard ethical principles, as was the case with this study.

3.11.2. Ethical Assurances

Since this study collected primary data from employees of commercial banks in Zimbabwe, it was essential to obtain ethics approval. Congruent with Unicaf University's code of ethics, the study received the requisite approval from the Unicaf Research Committee (UREC), as shown in Appendices A and B. Secondly, the researcher obtained approval from the Research Council of Zimbabwe, which is the apex body that deals with research in Zimbabwe. Lastly, the involved banks, through their gatekeepers, also allowed the researcher to use their employees as respondents. These approvals were necessary given that this study involved human beings as respondents (commercial banking employees). Such approval aims to ensure that this study is conducted in a way that upholds both professional and ethical standards, thereby respecting participant rights (Riley et al., 2023).

Various ethical principles must be upheld in research that involves human beings, and these principles include informed consent, confidentiality, anonymity, doing no harm, and protecting vulnerable populations (Seneviratne, 2023). This study involved collecting data from employees of commercial banks; thus, upholding ethical standards was considered a priority. Specifically, these were achieved as outlined in the section below.

3.11.2.1. Informed Consent

Before embarking on data collection, a researcher needs to obtain informed consent from the study subjects (Kovane et al., 2022). Informed consent refers to the approval given by the study subject to the researcher to volunteer in the study (Xiang, 2022). This study, therefore, sought permission at two levels. The commercial banks were asked to allow their employees to contribute

to the study, and the actual participants had to complete the informed consent forms. Room for further clarification was given to the participants. Furthermore, this ethical standard requires that participants be adequately informed about the research and its implications (Mannelli, 2022). Consequently, the participants were advised of the study's purpose, duration, procedures, and their entitlement to stop participating at any time without the need to give reasons. Because this study did not require responses from children or participants who could not represent themselves, guardian consent procedures were not necessary.

3.11.2.2. Confidentiality

According to Franzen (2021), confidentiality in research concerns the security of information and the privacy of those participating in the research. The study upheld confidentiality by not disclosing information from participants to other participating employees, participating commercial banks, or anyone else. In addition, secure communication protocols help achieve confidentiality (Magnani et al., 2018); thus, this study used online platforms with secure connections, and the received data was encrypted to ensure only the researcher had access. All the information that was provided to the researcher was treated as confidential, although participants would have freely provided that information. Following views from Surmiak (2020), this research advised the respondents how the provided information would be used so that they also exercised their right to have such information not used in the future in need. This was mainly achieved by outlining the above in the introductory section of the questionnaire.

3.11.2.3. Anonymity

Anonymity in research entails safeguarding the identity of those participating in the study either by keeping their personal information confidential or by ensuring that neither the researcher nor any other person knows their identity (Moses, 2021). This study achieved anonymity by

avoiding mentioning the names of the participants and the participating banks when reporting the results in the final thesis version. The questionnaire also avoided having participants' names on it. Where necessary, pseudonyms were assigned to participants to protect their identity and achieve anonymity (Dougherty, 2021). In addition, the responses were not linked to a particular individual or institution.

3.11.2.4. Minimisation of Harm

It is generally accepted by academia that participants must not be subjected to risks that exceed those to which they would be exposed in their normal lives (Howell, 2023). This study achieved this by getting informed consent (Mannelli, 2021) and upholding confidentiality and anonymity, as this has been seen to reduce emotional harm that may be associated with participants being exposed as having participated in a study (Woods et al., 2022). In addition, the study topic was carefully selected to ensure that it did not involve any bodily harm to participants.

3.11.2.5. Protection of Vulnerable Populations

Research may include such vulnerable populations as severely disabled people, persons with severe mental disabilities, and children. These individuals may not be able to provide valid consent to the study; therefore, to protect them, researchers are required to involve a family member or legal guardian (Raburn et al., 2023). This study did not include any persons considered vulnerable to ensure that the study fulfilled ethical standards.

3.11.2.6. Role of the Researcher

The researcher's interaction with respondents was minimal. This is because the study took a quantitative approach. The researcher's role was therefore to adhere to ethical principles to avoid such issues as data fabrication and misrepresentation, as this would compromise the integrity of the inquiry (Zyphur & Pierides, 2019). Furthermore, the researcher achieved objectivity by

reflecting on any potential biases and prejudices that may have impacted the research. Following McKenna et al. (2020), this study used rigorous research methods with the researcher taking a neutral stance to enhance the credibility of the results, thus reducing personal biases.

3.12. Chapter Summary

Overall, this chapter gave an overview of the study methodology, breaking down the attendant approaches and techniques used for conducting this study. The chapter started by revisiting the study problem and purpose statements. The problem statement revealed that the subject of DT has generated significant interest (Cheng et al., 2023) and the need for the implementation of DT has been premised upon technological ubiquity (Jihane & Aziz, 2022; Kitsios et al., 2021), high DT failure rates (Diener & Špaček, 2021; Sia et al., 2021), and threats from competition (Jihane & Aziz, 2022; Khams, 2022; Tran et al., 2022; Wewege et al., 2020). It also revealed that there is inadequate contextual literature (Chinakidzwa, 2020; Wadesango, 2020), and most studies have covered other geographical areas such as Europe and Asia (Sia et al., 2021). Furthermore, most of these studies employed either case studies or adopted a qualitative approach (Boufounou et al., 2022), creating gaps that this study aimed to close. The chapter then gave the study's purpose, which coincides with the problem statement, showing that this study aimed to investigate the DT framework constructs that aid the successful implementation of DT, thereby enhancing the performance of commercial banks.

The chapter moved on to discuss the philosophy underpinning the study. It showed that this study is undergirded by a positivist approach since it assumes that relationships exist between the study constructs, and these are measurable. The justifications for selecting this approach were highlighted, and this included that this approach resonates with the quantitative design approach (Scalcău, 2023). In addition, the chapter revealed that this study took a quantitative approach as it

aims to assess relationships between DT and employee productivity, IT capability, IT innovation and commercial bank performance. Reasons for using that approach include the need to generalise results (Iluba & Phiri, 2021), that it dovetails with earlier studies in a similar field (for example, Huang, 2023; Kontic & Kontić, 2023) and that it addresses the study objectives. It is also explained in this chapter that the study used a survey through the deployment of an online structured questionnaire, which allowed the researcher to gather data from a large number of respondents (Osei et al., 2023). For a meaningful data-gathering exercise, the researcher needs to identify the relevant population.

It was shown that the Zimbabwean commercial banks were the unit of analysis, while their employees were the unit of observation. The chapter discussed the population of interest, the target population, and the sampling frame. It further showed that there was a need to determine the minimum sampling size by carrying out an a priori analysis (Memon et al., 2021) using the G*Power 3.1.9.7 software that was triangulated with Krejcie and Morgan's (1970) table. The use of the KMT was justified by its robustness, ease of use, and proven reliability (Alrawashedh & Shubita, 2024; Asamoah et al., 2024; Schmidt & Hollestein, 2018), while power analysis was shown to be helpful when hypothesis testing is applied, which is the case in this study.

The methodology chapter explained and justified the instrument used to collect data. It was shown that this study applied a structured questionnaire that had closed-ended questions. The questionnaire was applied as it lined up with the nature of the study and assisted in meeting the study objectives by ensuring that the research questions were answered and aligned with previous studies (Charu et al., 2023; Hasan & İslatince, 2023; Kitsios et al., 2021) by adapting its measurement scales to earlier valid research. It was also discussed in this chapter how instrument

reliability and validity would be achieved. The chapter showed that the study involved interactions with humans; therefore, it was important to consider ethics in carrying out the research.

The chapter gave operational definitions of the main variables that pertain to the study topic, and these are identified as DT, employee productivity, IT capability, IT Innovation, and commercial bank performance. This was important as it allowed the quantification of the variables (Chittaranjan & Andrade, 2021).

To achieve ethical standards, it was shown in this chapter that the researcher received approval from the university's Research Ethics Committee (UREC), the Zimbabwe Research Council and the respective bank gatekeepers to proceed with the study, having satisfied the ethical standards of the institution. The chapter showed that the study complied with such ethics as confidentiality, anonymity, informed consent, and protection from harm, as well as protecting vulnerable populations (Magnani et al., 2018; Seneviratne, 2023; Woods et al., 2022).

Having discussed the ethical assurances, the chapter outlined how data was to be collected and analysed. It outlined the data collection steps and showed that this was a six-step process, and a clear data collection process allows replication and aids the validity of the study (Surucu & Maslakci, 2020). Data analysis was also explained, with SPSS being highlighted as the main analysis software. Structural Equation Modelling (SEM) was advanced as one of the analysis methods, with the use of both descriptive and inferential statistics being justified. The chapter concluded by explaining the hypothesis analysis procedure. Following this, the next chapter presents data analysis and the requisite results.

CHAPTER 4: RESULTS

4.1. Chapter Overview

This study intended to investigate the impact of DT on the performance of commercial banks in Zimbabwe, considering the mediating role of IT capability by taking into account the views of commercial bank employees in the country. This is against the backdrop of conflicting literature results. While some have associated DT with improved commercial bank performance (Sia et al., 2021; Zuo et al., 2021), some retained results that showed that DT may negatively impact performance (Reis & Melao, 2023; Tran et al., 2023). Furthermore, the area seems to have had few studies in the context of Zimbabwean banks, given that studies on DT have focused on other areas and other industries (Hakizimana et al., 2023; Hokonya, 2024; Masinire et al., 2023).

The role that IT capability plays in ensuring that commercial banks achieve the DT journey objectives has not been adequately studied in the literature (Cappa et al., 2020; Goldfarb & Tucker, 2019; Wang, 2023). Because not much effort has been put into bringing out how IT capability influences the relationship between DT and commercial bank performance, this study proposes to remedy this by looking at this relationship in the specific context of Zimbabwean banks.

The purpose of this study was informed by the fact that most studies that considered the impact of DT on the performance of commercial banks and the mediating role of IT capability were mostly done in developed and Asian countries (Cappa et al., 2020; Goldfarb & Tucker, 2019; Xie & Wang, 2023). It was therefore thought to be helpful to examine this topic in the specific context of Zimbabwean commercial banks. As explained in the literature review, it appears most studies applied a case study approach and a qualitative paradigm (Hakizimana et al., 2023; Hokonya, 2024; Masinire et al., 2023). In order to widen the methodological approach, this study

therefore sought to apply a quantitative study paradigm focusing on the commercial banks in Zimbabwe.

To achieve the study objectives, this study was guided by the positivist research philosophy in line with similar studies (Iluba & Phiri, 2021; Phadraig et al., 2023). This supported the quantitative research approach adopted by the study, given its intention to examine relationships between the study parameters outlined in the previous chapters. Furthermore, this study implemented a survey as the design of choice due to its capacity to allow the collection of large amounts of data for further statistical iterations (Osei et al., 2023; Roh et al., 2021).

The survey distributed online questionnaires to commercial banking employees chosen using the random sampling method. The questionnaire had closed-ended questions that made use of the Likert Scale. The data collection was done with full consideration of research ethics. This included getting approval from the university's ethics committee, obtaining approval from banks to obtain responses from their employees through signed gatekeeper letters, obtaining informed consent from the participants and upholding such ethical principles as confidentiality, anonymity, minimisation of harm, as well as the protection of vulnerable populations.

The collected data were analysed using the CFA and path analysis. However, it was initially subjected to data quality checks by carrying out Exploratory Factor Analysis (EFA) as well as reliability and validity of the study instrument.

In order to provide a systematic presentation of the study results, this chapter is organised as follows. The results section was preceded by a section that considers the trustworthiness of the data. This was followed by a discussion of the reliability and validity of the deployed questionnaire. Both internal and external validity were be considered in this section, showing how these were achieved in the context of this research.

The results section is organised such that the response rate, demographics and the profile of participants are presented first. This is followed by the presentation of any descriptive statistics pertaining to the study. Such descriptive statistics include the presentation of the mean and standard deviation. Furthermore, SEM, CFA, and path analysis are discussed in this section.

Subsequently, the rest of the chapter was arranged in accordance with the study hypotheses. The results pertaining to the assertion that the effects of DT on the performance of employees of commercial banks in Zimbabwe are positive and significant were presented. Similarly, results associated with the hypothesis that DT has a positive influence on the IT capability of Zimbabwean commercial banks were presented. This was followed by a consideration of the results associated with the hypothesis, which theorises that the impact of DT on IT innovation by commercial banks in Zimbabwe is positive and significant. In addition, the results associated with the assertion that the influence of IT innovation on the performance of Zimbabwean commercial banks is positive and significant were presented. Results associated with the hypothesis that IT Capability positively influences the performance of Zimbabwe's commercial banks were provided. This section also presents results associated with the hypothesis that employee productivity positively affects commercial bank performance in Zimbabwe, as well as the two hypotheses that propose that the mediating impact of IT capability on the relationship between DT and commercial bank performance in Zimbabwe is positive and that the relationship between digital transformation and Zimbabwean commercial bank performance is positive and significant.

Before giving the chapter summary, this section briefly presents an evaluation of the study results. The chapter terminates with the chapter summary, which presents the key points that have been covered in this chapter.

4.2. Trustworthiness of Data

This section discusses how the data that was collected met the four tenets of data trustworthiness. These four canons of data trustworthiness encompass credibility, transferability, dependability and confirmability (Babatunde, 2024; Condon et al., 2022; Kyngäs et al., 2020). Data trustworthiness is considered high in quantitative studies because this impacts the accuracy, reliability, and validity of study conclusions. Resultantly, this study employed various techniques to ensure that these principles are upheld. The following section explains the steps taken to achieve this.

4.2.1. Credibility

This pertains to the trust and confidence that can be assigned to the truthfulness of study outcomes by ensuring that the research results are an accurate reflection of the views and experiences of study respondents (Babatunde et al., 2024). Creswell and Poth (2018) view credibility in a study as the extent to which the results of that study can be trusted and believed. Babatunde et al. illuminate that credibility in quantitative studies mirrors internal validity, which focuses on the accuracy of a study's design, measurement and the accuracy of the results in representing the relationships between the study constructs. This can only be achieved if the data collected is also credible.

This study sought to examine the impact of DT on commercial bank performance, considering the mediating effects of IT capability. In order to achieve credibility of the data that was collected using a survey and the deployment of an online questionnaire, such techniques as triangulation of data sources through collecting data from different financial institutions (13 commercial banks), as opposed to one case study, assisted in enhancing the credibility (Kyngäs et al., 2020). This approach follows similar studies in the literature (Alrawashedh et al., 2024; Li,

2024; Pham, 2023) in studying a similar subject. These credible studies used primary data from various banks, confirming that using data from different organisations assists in achieving credibility in a quantitative study.

Creswell and Poth (2018) assert that studies can achieve credibility by subjecting the data and study process to peer debriefing. This involves consulting colleagues or experienced researchers. In this study, this was done by engaging at least three PhD holders, including the supervisor. This assisted in identifying issues that may negatively impact the study's credibility, and these were addressed upfront. Some such issues that were avoided as a result of these consultations included the need for the researcher to collect the data himself rather than engaging third parties.

Quantitative studies need to employ reliable and valid measurement tools if they are to achieve or enhance credibility and use proper sampling methods and statistical tests that assess study hypotheses in an accurate manner (Babatunde, 2024; Sürücü & Maslakçı, 2020). Consequently, this study employed valid measurement scales from prior valid studies. A comprehensive statistical analysis method (Structural Equation Model) was employed. This is consistent with prior valid studies (Bhuvanewari & Maruthamuthu, 2024; Murrar et al., 2024; Shameem et al., 2024). The SEM statistical tool has been hailed for its ability to handle multiple relationships, account for measurement errors, provide indices to assess how the model fits the data, and combine multiple regression and factor analysis (Plugge & Nikou, 2024).

Furthermore, this study carried out data cleaning by ensuring that the data is accurate and not corrupted by verifying the correctness and consistency of data entries. This is in line with Pilowsky et al. (2024), who posit that implementing a structured data-cleaning framework helps to achieve the credibility of a quantitative study. Similarly, Jafri (2022) illuminates that the

credibility of data in a quantitative study applying primary data requires systematic techniques that standardise the dataset. As a result, this study identified inaccuracies, removed any duplicates and ensured that data formats were consistent. It also identified outliers and normalised these to achieve data consistency. Overall, this study aligns with Pilowsky et al. by ensuring that reliability in this study is enhanced by ensuring data integrity, consistency, completeness and accuracy.

4.2.2. Transferability

This involves how study results can be used in other contexts or groups, or rather how individuals can juxtapose their context of study, thereby enabling the generalisation of results to other contexts (Merriam & Tisdell, 2016). This means that the data collected for the study must lend itself to being generalised. Transferability in quantitative studies has been seen to be related to external validity (Babatunde, 2024). In line with Kyngäs et al. (2020), this study ensured that a detailed description of the methodology and research context was provided so that others could examine if the results apply to their contexts. The use of statistical generalisation, giving a clear sample characteristics description and a clear description of the research context, can also assist in achieving transferability (Babatunde). This study applied rigorous statistical approaches and tests, and had a clearly defined sample, being commercial banking employees, achieved through triangulating power analysis and the Krejcie and Morgan (1970) table. Data was collected from commercial banks using a stratified random sampling technique. The population of interest was also defined, and this ensures transferability (Spake et al., 2022).

4.2.3. Dependability

A study achieves dependability by employing intersecting approaches and a detailed description of the methodology employed (Babatunde, 2024). Dependability mirrors reliability in the context of quantitative studies. This study on the impact of DT on commercial bank

performance, considering the mediating impact of IT capability, employed different statistical techniques and collected 310 data points, offering a dataset that is robust and in need of any replication, as is the case with Asamoah (2024). In order to achieve consistency in this study, standardised data collection procedures were applied (Kuckartz & Rädiker, 2019). An online survey was conducted using a questionnaire with closed-ended questions and standard Likert Scales. A pretest of the survey instrument was done, and a pilot survey involving 28 participants was also instituted. To cement dependability, the study applied Cronbach's Alpha (Kimathi et al, 2024; Nguyen-Viet & Nguyen, 2023).

4.2.4. Confirmability

Data confirmability is critical in research as it ensures objectivity and reduces researcher bias. This pertains to having results that have not been influenced by the bias of the one carrying out the research by basing them on data alone (Babatunde, 2024). In this study, confirmability was achieved through the use of data analysis methods that can be replicated as well as methodological approaches that can be verified independently (Chung et al. 2020). These statistical data analysis methods included the use of SPSS and application models such as SEM. This aligns with Alrawashedh and Shubita (2024), who applied regression analysis to confirm the impact of DT on firm performance. Furthermore, confirmability in this study was enhanced by keeping a traceable data collection and analysis process. The data was collected using the Google Forms platform, which provided the first layer of the analysis. SPSS was also employed to provide another layer of analysis.

Nonetheless, methodological weaknesses still present themselves in a manner that may still impact the study results, thereby presenting confirmability challenges. Specifically in studies involving DT, the complexity of this phenomenon as it pertains to its impact on performance and

the mediation of IT capability may result in significant variations in the study results due to differing contexts and external influences (Miklaszewska, 2022; Nguyen-Viet & Nguyen, 2023). In this study, this weakness was addressed through the application of diverse methodologies such as power analysis combined with Krejcie and Morgan's 1970 table, as well as other robust methodologies outlined above.

4.2.5. Reliability and Validity of Data

This section considers the twin aspects of validity and reliability. It has been observed in the literature that ensuring reliability and validity is crucial in research, as this ensures that the study accurately reflects the concepts that it seeks to examine (Ahmed & Ishtiaq, 2021). According to Sürücü and Maslakçı (2020), quantitative studies must test both the reliability and validity of a measuring instrument, and these two constructs need to be satisfied. They argue that reliability is not by itself sufficient to achieve validity, given that a reliable test may not be accurate in pinpointing the desired quality or behaviour. Consequently, this study assessed both the reliability and validity of the data using various metrics such as the Indicator Reliability (Factor Loadings), Cronbach's alpha, Average Variance Extracted (AVE) and Composite Reliability as shown in Table 13. This table indicates that the data satisfied the minimum thresholds.

4.2.5.1. Reliability

This has been defined as the ability of measuring instruments to maintain the same results when used at different intervals in time, thus displaying consistency over time (Sürücü & Maslakçı, 2020). A reliable instrument is essential in a study as it assures healthy study results that can be relied upon. Consequently, researchers must increase study reliability by applying measurement scales whose validity and reliability have been tested in prior studies (Lamm, 2020). This study, therefore, adapted measurement scales from prior valid studies as shown in the previous chapter.

Reliability and validity tests were conducted to ensure that the measurement instruments used in this study were both consistent and accurate. As shown in Table 13, all constructs achieved Cronbach's alpha values above the recommended threshold of 0.70, indicating strong internal consistency. Composite reliability (CR) values presented in Table 14 were also above 0.70, confirming that the items within each construct reliably measured the same underlying concept (Zhu & Jin, 2023). Furthermore, indicator reliability, internal consistency reliability, and convergent reliability were measured as explained in the following section.

i. Indicator Reliability

It is generally accepted that reflective indicator loadings with values that exceed 0.5 confirm the sufficiency of an item as a measure of that construct (El-Den et al., 2020; Hair et al., 2021; Tavakol & Wetzel, 2020). Tests carried out for this study, displayed in Table 13 below, show that all the indicator loadings exceeded 0.5, thus satisfying the requirements of indicator reliability.

ii. Internal Consistency Reliability

Internal Consistency reliability refers to how a set of measures in a test examines a given variable and is commonly measured using Cronbach's Alpha (Nawi et al, 2020) as well as Composite Reliability (CR) (Hair et al., 2021). In studying the DT success factors in Sri Lankan commercial banks, Madanayake and Yapa (2024) agree with Ouma and Ndede (2020) in their studies on the impact of digital innovations on the performance of Kenyan banks that a Cronbach's Alpha value exceeding 0.7 is considered sufficient in indicating internal consistency reliability. Similarly, other authors (Zhang et al., 2024; Zhu & Jin, 2023) posit that a CR value of 0.7 and higher reflects sufficient internal consistency reliability.

As indicated in Table 15 below, the DT scale, which consists of 5 items, returned a Cronbach's Alpha of 0.86, indicating good reliability. The employee productivity measure, made up of 6 items, showed a Cronbach's Alpha of 0.8, exceeding the 0.7 level, thus confirming good reliability. The other measures encapsulating IT Capability, IT innovation and Commercial bank Performance (All with 6 items each) returned Cronbach's Alphas of 0.78, 0.79 and 0.79, respectively. All these surpassed the 0.7 level by significant levels, suggesting strong internal consistency. That all the Cronbach's Alphas exceeded 0.7 for all the measures confirms that this study achieved internal consistency (Hair et al., 2021). Further, this study confirmed reliability through the use of composite reliability, which turned out to be above 0.7 for the various measures of each study variable.

iii. **Convergent Reliability**

Convergent validity was assessed through the Average Variance Extracted (AVE) (Osei et al., 2023) values in Table 15, all of which exceeded the minimum acceptable level of 0.50. This demonstrates that each construct explains more than half of the variance of its indicators. Additionally, discriminant validity was confirmed as the square root of each construct's AVE was greater than its correlations with other constructs, indicating that the constructs were statistically distinct from one another. Together, these results validate the suitability of the measurement model and support the reliability of the subsequent SEM analysis.

Factor loadings were obtained through Confirmatory Factor Analysis (CFA) conducted in SPSS AMOS (version 26) as part of the SEM measurement model. CFA was used to validate the indicator–construct relationships specified a priori, based on the study's conceptual framework and measurement scales adapted from prior empirical studies. The standardised factor loadings (standardised regression weights) for each indicator were extracted from the CFA output.

Table 15*Reliability and Validity*

Variable	Code	Measurements	Standardised Factor Loadings	Cronbach Alpha	Average Variance Extracted	Composite Reliability
Digital Transformation	DT1	Our bank is pushing new business methods based on technologies such as big data analytics, and social media platforms	0.62	0.86	0.58	0.81
	DT2	Our bank is combining digital tools such as social media, big data analytics, cloud, and mobile technologies to facilitate change	0.68			
	DT3	Our bank is transitioning toward the utilisation of digital technologies such as big data analytics, cloud, mobile, and social media platform.	0.64			
	DT4	The bank's IT application portfolios have facilitated the achievement of digital transformation by the bank	0.74			
	DT5	The bank employs various digital tools including data analytics, social media, and cell phone and embedded services to know customers better.	0.68			
Employee Productivity	EP1	The employees of the firm fully participate in the DT of the bank.	0.54	0.80	0.53	0.79
	EP2	The DT in our bank enhances employee motivation, knowledge, competence and digital leadership.	0.56			
	EP3	The ICT resources from our bank's DT program improve work efficiency	0.80			
	EP4	I can easily understand and use new ICT deployed by the bank.	0.59			
	EP5	The ICTs used by our bank enable me to accomplish my tasks faster.	0.77			

Variable	Code	Measurements	Standardised Factor Loadings	Cronbach Alpha	Average Variance Extracted	Composite Reliability
IT Capability	IT1	The bank invests in IT application portfolios and the latest technology to facilitate digital transformation.	0.72	0.78	0.60	0.92
	IT2	The bank's data administration services and designs are superior to the competition.	0.85			
	IT3	The bank always combines its strategic planning and IT planning to achieve digital transformation.	0.90			
	IT4	Our bank's IT helped to improve organisational performance in the last three years.	0.81			
	IT5	The bank continually endeavours to enhance the effectiveness of IT use to accomplish digital transformation.	0.88			
IT Innovation	ITN1	The bank's DT produces IT innovations of superior quality to the competition	0.85	0.75	0.55	0.87
	ITN2	At this bank, our IT staff are encouraged to be the most creative IT department in the commercial banking sector	0.53			
	ITN3	The bank's DT program allows the bank to produce new products constantly	0.82			
	ITN4	Our IT innovations increase the quality of current products	0.74			
	ITN5	The bank's IT innovations give it an edge in marketing over the competition	0.81			
Commercial Bank Performance	CBP1	Over the previous three years, our bank's performance as evaluated by the return on investment (ROI) has been better than the competition	0.61	0.79	0.52	0.86
	CBP2	Over the past 3 years, our bank's expenses and costs have been lower than our competitors	0.78			

Variable	Code	Measurements	Standardised Factor Loadings	Cronbach Alpha	Average Variance Extracted	Composite Reliability
	CBP3	The bank's digital transformation initiatives have seen an increase in customer satisfaction over the past 3 years.	0.85			
	CBP4	Over the past 3 years, our bank's net profit has been higher than our competitors due to digital transformation initiatives.	0.71			
	CBP5	The bank experienced revenue growth that exceeded the competition during the past three years.	0.77			

The CFA results show that all items loaded positively onto their respective constructs. The majority of factor loadings met the recommended threshold of ≥ 0.70 , with all acceptable loadings above 0.50, indicating adequate item reliability. Composite reliability values exceeded 0.70 for all constructs, confirming internal consistency. AVE values exceeded 0.50, confirming the convergent validity of the measurement model.

4.2.5.2. Validity

As Sürücü and Maslakçı (2020) illuminate, the concept of validity is closely associated with reliability, yet they express divergent properties of the instrument used in the study. It has been suggested in the literature that an instrument can be reliable yet fail to be valid (Teglasi et al., 2023). It was therefore important in this study to ensure that while having achieved reliability, the study also achieves validity.

In general, validity has been defined as the extent to which an instrument measures what it intends to measure; therefore, it has been regarded as a measure of how effectively an instrument carries out its measurement function (Sürücü & Maslakçı, 2020). Validity is often regarded as

being made up of internal and external validity. Internal validity is concerned with the extent to which the measurement and the respective tests are themselves valid (Zhu & Yin, 2023). On the other hand, external validity refers to the generalizability of a study to other settings, populations and times, thereby extending the applicability of the research beyond the current settings (Zhang et al., 2024).

i. Internal Validity

In order to achieve internal validity, this study addressed the issue of selection bias by using the stratified random sampling method (Osei et al., 2023). This is because it allows subgroups within a population to be represented in proportion to their size. Consequently, there is no reason to believe that the study participants would have different experiences from those not selected. According to Sekaran and Bougie (2016), internal validity is solidified by using a simple random sampling method, as this helps deal with statistical regression effects that are, in most cases, responsible for threatening internal validity. While stratification was done, the elements were then chosen using random sampling. Furthermore, the use of the more advanced SEM addressed potential confounding variables (Zhang et al., 2024), thereby strengthening the study's internal validity.

ii. External Validity

In order to achieve external validity, it was imperative that this study address the factors that influence the construct, and this includes study design, selection of the study variables, as well as the sample size (Webster-Clark et al., 2024). Because this was a study that hypothesised relationships between dependent and independent variables, a quantitative study design was used. The selected variables were supported by prior valid research, thereby enhancing the external validity of this study. Furthermore, the use of a stratified random sampling method helped in

enhancing the generalizability of the study to wider populations (Bougie, 2016) and hence attain external validity.

In line with some authors (Zhang et al., 2024; Zhu & Jin, 2023), this study employed a survey design which collects data from a larger and more diverse sample (in contrast to a case study), which improves generalizability, thereby enhancing the external validity of this study. In addition, the use of statistical analysis, such as SEM, helped identify patterns and relationships that can be generalised to the broader banking population.

iii. Convergent Validity

Convergent validity is interpreted as the extent to which various items defining or measuring a construct are related to each other or the degree to which they correlate, showing that they cohesively measure a similar variable (Lim, 2024). A study that achieves these two validity indicators is said to have achieved construct validity (Engelhard et al., 2020). Prior studies (Lim, 2024; Makumbe, 2022; Moher et al., 2020) posit that convergent validity for adapted measures is best tested by applying confirmatory factor analysis (CFA). Consequently, studies must apply AVE and Composite Reliability, and the factor loadings must exceed 0.5 and 0.7, respectively (Bagozzi, 1986; Hair et al., 2021).

Convergent validity was assessed using the factor loadings, Composite Reliability (CR) and Average Variance Extracted (AVE). Consistent with recommended thresholds, factor loadings ≥ 0.50 (preferably ≥ 0.70), $CR \geq 0.70$ and $AVE \geq 0.50$ were considered evidence of adequate convergent validity. The results of the tests are presented in Table 16 below.

Table 16*Convergent Validity*

Variable	Average Variance Extracted	Composite Reliability
Digital Transformation	0.58	0.81
Employee Productivity	0.53	0.79
IT Capability	0.60	0.92
IT Innovation	0.55	0.87
Commercial Bank Performance	0.52	0.86

As shown in Table 16 above, all average variance extracted and composite reliability loadings for the study variables exceeded 0.5, indicating that more than half of the variance in the indicators was accounted for by the latent construct. In addition, composite reliability scores all exceeded 0.7, demonstrating strong internal consistency. This confirms that the items that were used to measure each of the constructs were reliable and converged appropriately. Given that all the constructs displayed strong and positive influence on commercial bank performance (Betas ranging from 0.09 to 0.91 and all p values of 0.001), the study findings can be interpreted with confidence, given that all constructs involved demonstrated strong convergent validity.

iv. Discriminant Validity

On the other hand, Discriminant Validity evaluates the extent to which the individual study constructs are distinctive, thus ensuring that unrelated variables are not correlated (Moher et al., 2020). Concerning discriminant validity, this study applied Fornell and Larcker's (1981) model. This states that discriminant validity is achieved if the square root of the AVE for each variable exceeds the variable's highest correlation with any of the other variables in the study. The square

root of the AVE for each latent variable is depicted in Table 17 below. The AVE is presented diagonally in bold italics in the highlighted boxes. The attendant correlations of each latent variable with each other latent variable in the study are also presented. The results confirm that the diagonal values ($\sqrt{\text{AVE}}$) exceed the corresponding inter-construct correlations, indicating satisfactory discriminant validity across the measurement model.

Table 17

Discriminant Validity

	Digital Transformation	Employee productivity	IT Capability	IT Innovation	CBP
Digital Transformation	<i>0.76</i>				
Employee productivity	0.72	<i>0.73</i>			
IT Capability	0.69	0.72	<i>0.77</i>		
IT Innovation	0.70	0.71	0.73	<i>0.74</i>	
CBP	0.71	0.65	0.70	0.71	<i>0.72</i>

Note: CBP = Commercial Bank Performance

The results presented in Table 17 above reflect that the square root of the AVE of the measured latent variables is in all cases higher than any of the correlations with any other variable. This satisfies the Fornell-Larcker criteria (Hair et al., 2021), and this therefore confirms that each variable captures its own unique portion of the variance in comparison to other variables in the model. Consequently, it can be concluded that this study achieved discriminant validity.

The establishment of the discriminant validity in Table 17 strengthens the confidence in the results of this study. This confirms that the significant paths in the model (for example, from

DT to commercial bank performance) represent distinct theoretical relationships void of overlapping measurement.

4.3. Results

This section presents the results of this empirical investigation into the impact of DT on commercial bank performance in Zimbabwe, considering the mediating role of IT Capability. It provides a detailed presentation of the data collected from 310 participants from the commercial banks operating in Zimbabwe. These results are organised into three sections, and these are: The Demographics Data, which assists in contextualising the ensuing analysis; followed by the descriptive statistics that provide an analysis of the measurement items forming the study variables, thereby indicating valuable information regarding the distribution of the study variables. To cap the analysis, the results from hypothesis testing were obtained and analysed through the application of inferential statistics, which was applied to investigate the hypothesised relationships between study variables.

4.3.1. Response Rate

This quantitative survey distributed 361 questionnaires (consistent with the target sample size determined using Krejcie and Morgan's (1970) table) to the 13 commercial banks in Zimbabwe through an online survey. Of these, 310 commercial bank employees filed online responses, resulting in an 85.9 per cent effective response rate. As observed by Comfort et al. (2024), a response rate is critical in supporting data credibility in a study. As such, many studies observe that a minimum response rate of 60% is acceptable (Abdulaziz, 2024; Beehr et al., 2022; Brooks, 2022; Neve et al., 2021). The high response rate was rated good, and it is summarised in Table 18 below.

The difference of 51 questionnaires was due to a combination of non-responses and incomplete submissions that did not meet the minimum criteria for inclusion (e.g., missing sections, patterned responses, or failure to complete more than 50% of items). Given that the final usable sample (N = 310) exceeds the minimum required by the G*Power analysis (N = 92), the study retains adequate statistical power for all SEM procedures.

Table 18 *Response Rate*

Item	Frequency	Percentage (%)
Returned Questionnaires	310	85.9
Questionnaires not returned	51	14.1
Total	361	100

4.3.2. Demographic Results

This section presents the outcomes relating to the demographics of the study. Specifically, the section covers gender, age, education, level of education, employment duration, employment status, number of years the bank has been operating, and the respondent's position in the bank.

4.3.2.1. Results on Respondents' Gender

The study sought to determine the gender of the participants by specifying whether they were male, female, or any other gender they may identify as. They were also allowed to not respond to the question by selecting the "I prefer not to answer" option. Table 19 presents the gender distribution of the study participants.

Table 19

Gender of the Participants

Demographics	Frequency (N)	Percentage (%)
Male	209	67.4
Female	101	32.6
I prefer not to answer	0	0
Other (Specify)	0	0

n =310

According to the data presented in Table 19 above, it can be seen that the largest portion of the sample was male, making up 67.4%, while females were 32.6% of the respondents. The gender distribution was considered acceptable as it lined up with the gender balance in the Zimbabwean workforce. According to the Zimbabwe National Statistical Agency (2024), 37% of the national labour force is made up of women. Consequently, it can be seen that the study captured views from both genders in a balanced way.

4.3.2.2. Results on Respondents' Age

The study sought to establish the age of the respondents and categorise them into millennials (18 to 34 years), Generation X (35 to 49 years) and Baby Boomers (50 to 65 years). Table 20 below displays the frequencies as well as the percentage of each category.

Table 20

Age Profile of the Participants

Demographics	Frequency N	Percentage %
Millennials (18 -34 Years)	206	66.45
Generation X (35-49 Years)	92	29.68
Baby Boomers (50 -65 Years)	11	3.55
Missing	1	0.32

n =310

Table 20 above shows that the bulk of the respondents were millennials, whose age range was between 18 and 34 years of age. These constituted 66.45%, followed by the mid-career generation X (35 – 49 years of age), who constituted 29.68% of the respondents. Respondents in

the twilight of their careers, also referred to as the baby boomers (50 to 65 years), constituted a meagre 3.55% of the respondents.

4.3.2.3. Results on Respondents' Level of Education

Given that the subject under study is highly technical, the researcher saw it critical to explore the highest level of education attained by the respondents. The choices included a school Certificate, Diploma, Undergraduate degree, Masters degree and Doctorate. Table 21 below presents the results obtained from the respondents regarding their level of education.

Table 21

Respondents' Level of Education

Demographics	Frequency N	Percentage %
Diploma	2	0.6
Undergraduate Degree	172	55.5
Master's Degree	118	38.1
Doctorate	18	5.8

n =310

Table 21 above shows that most of the respondents from the commercial banking sector in Zimbabwe possessed at least an undergraduate degree. 55.5% of the respondents indicated that they had attained an undergraduate degree, while 38.1% were holders of a Master's degree, and 5.8% of the respondents had a Doctorate. These results were expected given that most banks in Zimbabwe require at least a Bachelor's degree at the entry level.

4.3.2.4. Results on Respondents' Employment Duration

The study sought to establish the duration of employment for each respondent. This was done by categorising the employment duration into buckets, thus below 5 years, 6 – 10 years, 11 - 15 years, 16 – 20 years, 21 - 25 years, 26 - 30 years and over 31 years. Table 22 below depicts the results from the employment duration of the respondents.

Table 22

Respondents' Employment Duration

Duration of Employment in Years	Frequency (N)	Percentage (%)
5<	135	43.55
6 - 10	70	22.58
11 – 15	54	17.42
16 – 20	27	5.8
21 – 25	10	3.23
26 - 30	9	2.90
> 31	5	1.61

n =310

While Table 22 above shows that the largest portion of the respondents had worked in the commercial banking sector for a period of less than five years (43.55%), the majority of the respondents had worked in the commercial banking sector for at least 6 years (56.45%). This meant that the majority of respondents had served their commercial bank for more than 6 years, implying that they had a better understanding of how DT affected their banks. This buttressed the correctness of their responses, which is valuable in any study.

4.3.2.5. Results on Respondents' Employment Status

The researcher sought to find out the employment status of the respondents by establishing the employment status of the participants. This was established by checking whether they were permanent employees or were on contract. Table 23 below indicates that the bulk of the respondents in the commercial banking sector in Zimbabwe were permanent employees (89.68%), while 10.32% were on contract. These results were expected given the need for continuity in banking; thus, more employees will be on a permanent basis.

Table 23

Respondents Employment Status

Employment Status	Frequency N	Percentage %
Contract	32	10.32
Permanent	278	89.68

n =310

4.3.2.6. Results of Respondents' Position in the Bank

The researcher sought to find out the hierarchical position of the study participants at their respective commercial banks by checking whether they were non-managerial, lower-level management, middle managers, or executives. The outcome of the inquiry is shown in Table 24 below.

Table 24 *Respondents' Position in the Bank*

Hierarchical Position in Bank	Frequency N	Percentage %
Non-Managerial	103	33.20
Lower-Level Manager	168	54.20
Middle-Level Manager	34	11.00
Executive-Management	5	1.60

n =310

From the frequencies obtained in the survey (as indicated in Table 24 above), it was discovered that 54.2% of the respondents were lower-level managers, 33.2% were non-managerial, 11% were middle-level managers, and 1.6% were executive managers. This outcome is consistent with the triangle shape for most organisational structures, where few officers occupy the top positions and the numbers increase as one descends the organisational hierarchy.

4.3.3. Discussion on the Results from Demographic Data Analysis

The study gathered demographic statistics relating to gender, age, level of education, employment duration, employment status, and hierarchical position.

The results pertaining to the gender of the participants revealed that the majority (67.4%) of the participants were male. These results agree with various studies (de Andrés et al., 2020; Dev & Sharma, 2021; Rath & Mishra, 2022) that point out that more males are generally employed by banks compared to females. In the case of Zimbabwean commercial banks, this was expected, given that according to the Zimbabwe National Statistical Agency (2024), women make up 37% of the labour force in Zimbabwe.

The study results showed that the bulk of respondents (66.45%) from the Zimbabwean commercial banking sector were millennials (18-34 years). These results resonate with some studies (Hannant, 2019; Kumar & Singh, 2017) that point out that the banking sector generally prefers employing millennials as they view them as easy to train, relatively cheaper to compensate and can easily adapt to the dynamic banking environment. This high proportion of millennials (66.45%) suggests that the majority of the respondents were capable of handling and understanding the complex issues associated with DT. That most participants who responded were at least 18 years old and at most 34 years old is not surprising, given the race by banks to employ millennials in recent times (Momot & Lytvynenko, 2019).

In terms of educational qualifications, study outcomes showed that 99.4% of the respondents had at least an undergraduate degree. Specifically, the majority of the respondents (55.5%) possessed an undergraduate degree, 38.1% of the respondents from the commercial banking sector in Zimbabwe possessed a Masters degree, and 5.8% possessed a Doctorate. This shows that the commercial banking sector in Zimbabwe is highly educated, and the respondents were qualified to respond to the complex issues regarding DT and commercial bank performance with specific regard to the intermediating role of IT capability in the said relationship.

The study results resonate with Lethepa et al. (2020), whose research concluded that the high educational qualifications in the banking sector result from the need for banks to have their employees understand complex financial products. Similarly, Pilatin (2023) reveals that it is expected that banks will employ highly educated individuals, as these will perform better. The high level of education in the banking sector was not surprising, given that the recruitment process in Zimbabwe's commercial banking sector emphasises a university degree as an entry-level education (Musarapasi & Garanti, 2020) and also the fact that most of the respondents are young (between 18 and 34 years as shown earlier), they are generally keen to advance their education.

Regarding the respondents' employment duration, it was seen in this study that most respondents had worked for at least six years in the banking sector (a combined total of 56.45%). The results revealed that 43.55% had worked in the commercial banking sector for less than five years. The concentration of respondents in the less than five years category is not surprising, given that banks are increasingly employing millennials who have been seen to easily change jobs (Perkasa & Purwanto, 2024). Furthermore, the study outcome indicated that most respondents (89.68%) were permanent employees, while a paltry 10.32% were on contract. This result was

rather surprising given that recent studies have shown that banks are employing more contract workers than permanent workers as a measure to manage costs (Kalejaiye,2019).

In terms of the hierarchical positions, it was revealed in the study that the majority of the commercial bank employees who responded (54.20%) were lower-level managers. Non-managerial employees accounted for 33.2% of the respondents. These results were expected, given that the dominance of middle-level managers and non-managerial employees is consistent with trends in the industry, given that several banks avoid a top-heavy structure to manage costs and achieve efficiency (Wagener, 2023).

4.4. Descriptive Statistics on Study Variables

This section presents the descriptive statistics of the six constructs investigated in this study, and these constructs are DT, employee productivity, IT capability, IT Innovation and commercial bank performance. The questions in each construct were analysed using the minimum values, maximum values, means, standard deviations and variances. These statistics provide a comprehensive assessment of the distribution of responses for every observed variable presented in the measurement model. Table 25 below presents the overall descriptive results.

4.4.1. Descriptive Statistics on Digital Transformation

This construct constituted five items (DT1 to DT5) that were measured using proportion, mean, standard deviation and variance. Study respondents showed the extent of their agreement on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The descriptive statistics for each item are displayed in Table 25 below.

Table 25*Descriptive Statistics for Digital Transformation*

Measurement Item	SD	DA	UC	AG	SA	Min	Max	Mean	Std. Deviation	Variance
DT1: Our bank is pushing new business methods based on technologies such as big data analytics, and social media platforms.	0%	1%	2.9%	93.9%	2.2%	2	5	3.9742	.29991	.090
DT2: Our bank is combining digital tools such as social media, big data analytics, cloud, and mobile technologies to facilitate change	0.4%	0.6%	6.1%	88.4%	4.5%	1	5	3.9581	.39599	.157
DT3: Our bank is transitioning toward the utilisation of digital technologies such as big data analytics, cloud, mobile, and social media platforms	0%	1%	20.6%	70.3%	8.1%	2	5	3.8548	.55292	.306
DT4: The bank's IT application portfolios have facilitated the achievement of digital transformation by the bank	0%	1.6%	13.2%	80%	5.2%	2	5	3.9065	.49032	.240
DT5: The bank employs various digital tools including data analytics, social media, and cell phone and embedded services to know customers better	0%	1.3%	11.3%	79.4%	8.1%	2	5	3.9419	.49252	.243

Note: N =310, SD = Strongly Disagree; DA = Disagree; AG = Agree; SA = Strongly Agree.

As illustrated in Table 25 above, the mean scores for the five DT items ranged from 3.8548 (DT3) to 3.9742 (DT1), indicating that on average, respondents tended to agree with the statements pertaining to their bank's DT initiatives. The standard deviations ranged from 0.29991 (DT1) to 0.55292 (DT3), pointing to a relatively low level of dispersion around the mean with a reasonable

level of consensus among the study participants. The minimum and maximum values for the items under this study construct ranged from 2 to 5, indicating that, whereas the majority of the respondents gave positive responses, some disagreement was present. It can be seen from the table that DT3 had the lowest mean (3.8548) and the highest variance (0306), suggesting a bit of variability in perceptions about the bank's transition progress compared to other aspects of DT.

Specifically, data analysis presented in Table 25 above indicates that 93.9% of the respondents agreed with the view that their bank was pushing new business methods based on technologies such as big data analytics and social media platforms, indicating a high consensus among the respondents. Similarly, the majority of the sampled participants agreed (88.4%) that their bank was combining digital tools such as social media, big data analytics, cloud, and mobile technologies to facilitate change. Most study participants (70.3%) agreed that their bank was transitioning toward the utilisation of digital technologies such as big data analytics, cloud, mobile, and social media platforms.

Concerning the bank's IT application portfolios having facilitated the achievement of digital transformation by their bank, 80% of the sampled participants agreed with this statement. In addition, 79.4% of the participants agreed that their bank employed various digital tools, including data analytics, social media, and cell phone and embedded services to know customers better.

4.4.2. Descriptive Statistics on Employee Productivity

The employee productivity variable sought to analyse the perceptions of commercial banks on the five measures associated with employee productivity in the context of DT. This construct was measured using five items (EP1 to EP5). The results of the analysis are presented in Table 26 below.

Table 26*Descriptive Statistics for Employee Productivity*

Measurement Item	SD	DA	UC	AG	SA	Min	Max	Mean	Std. Deviation	Variance
EP1: The employees of the firm fully participate in the DT of the bank	0.6%	2.3%	11%	81.9%	4.2%	1	5	3.8677	.53237	.283
EP2: The DT in our bank enhances employee motivation, knowledge, competence and digital leadership.	0%	1.9%	9.4%	81.9%	6.8%	2	5	3.9355	.48508	.235
EP3: The ICT resources from our bank's DT program improve work efficiency	0.3%	1%	11.9%	81%	5.8%	1	5	3.9097	.48762	.238
EP4: I can easily understand and use new ICT deployed by the bank	0%	0.6%	9.7%	82.9%	6.8%	2	5	3.9548	.43088	.186
EP5: The ICTs used by our bank enable me to accomplish my tasks faster.	0%	0.6%	8.7%	81.9%	8.7%	2	5	3.9871	.44775	.200

Note: N =310, SD = Strongly Disagree; DA = Disagree; AG = Agree; SA = Strongly Agree.

The study results on the EP construct presented in Table 26 above reveal that the mean scores ranged from 3.8677 (EP1) to 3.9871 (EP5). The highest mean was observed for EP5, suggesting that commercial bank employees in Zimbabwe perceive digital tools as directly enhancing their task efficiency. On the other hand, the lowest mean was EP1, suggesting a slightly less agreement towards the level of employee involvement in DT activities. Furthermore, the table shows that the standard deviations were low for all the items, ranging from 0.43088 (EP4) to 0.53237 (EP1), showing that the responses were consistent. The homogeneity of the employee responses was confirmed by the low variances, which ranged from 0.186 (EP4) to 0.283 (EP1).

The analysis in Table 26 above reveals that the majority of respondents from the Zimbabwean commercial 81.9% agreed that they fully participated in the DT of their bank.

Similarly, 81.9% agreed that the DT in their bank enhanced employee motivation, knowledge, competence and digital leadership. 81% of the study respondents agreed that the IT resources in the bank assisted in improving work efficiency. In addition, 82.9% of the study participants confirmed that they understood and used new ICTs deployed by their bank, while 81.9% agreed that the ICTs used by their bank enabled them to accomplish their tasks faster.

4.4.3. Descriptive Statistics on IT Capability

This analysis gives an overview of the perceptions of the respondents regarding the bank's IT Capability assessed across the five critical dimensions (IT1 to IT5), as shown in Table 27 below, which presents the descriptive statistics for each item.

Table 27

Descriptive Statistics for IT Capability

Measurement Item	SD	DA	UC	AG	SA	Min	Max	Mean	Std. Deviation	Variance
IT1: The bank invests in IT application portfolios and the latest technology to facilitate digital transformation.	0%	1%	7.4%	86.1%	5.5%	2	5	3.9613	.40839	.167
IT2: The bank's data administration services and designs are superior to the competition.	0%	0.6%	7.7%	83.9%	7.7%	2	5	3.9871	.42551	.181
IT3: The bank always combines its strategic planning and IT planning to achieve digital transformation.	0%	0.6%	10%	81%	8.1%	1	5	3.9581	.48423	.234
IT4: Our bank's IT helped to improve organisational performance in the last three years.	0%	0.6%	8.1%	83.9%	7.4%	2	5	3.9806	.42527	.181
IT5: The bank continually endeavours to enhance the effectiveness of IT use to accomplish digital transformation.	0%	0.3%	9%	83.9%	6.8%	2	5	3.9710	.41313	.171

Note: N =310, SD = Strongly Disagree; DA = Disagree; AG = Agree; SA = Strongly Agree.

The mean scores for the IT capability construct were uniformly high, as depicted in Table 27 above. The unit items had means ranging from 3.9613 (IT1) to 3.9871 (IT2). The results illustrate that employees of Zimbabwean commercial banks perceived their banks as having a competitive edge in data management, as shown by IT2, which had the highest mean. The low standard deviations (ranging from 0.40839 to 0.48423) suggested a strong consensus among the respondents. This construct returned variance levels lower than the other constructs in the model (0.171 to 0.234), suggesting that IT capability is a variable with high agreement among the employees of commercial banks in Zimbabwe.

As can be seen from Table 27 above, the majority of the respondents from the sampled commercial bank employees agreed that their bank invested in IT application portfolios and the latest technology to facilitate digital transformation. A significant majority (83.9%) also concurred that their bank's data administration services and designs were superior to the competition. Furthermore, 81% of the respondents from the sample agreed that their bank always combined its strategic planning and IT planning to achieve digital transformation. 83.9% of respondents agreed that their bank's IT helped to improve organisational performance in the last three years, while 83.9% concurred that their bank was continually endeavouring to enhance the effectiveness of IT use to accomplish digital transformation.

4.4.4. Descriptive Statistics on IT Innovation

This sub-section presents the analysis associated with the IT Innovation variable. This construct was measured using five items (ITN1 to ITN5). The descriptive statistics for each item are shown in Table 28.

Table 28*Descriptive Statistics for IT Innovation*

Measurement Item	SD	DA	UC	AG	SA	Min	Max	Mean	Std. Deviation	Variance
ITN1: The bank's DT produces IT innovations of superior quality to the competition.	0%	1.9%	9.7%	82.3%	6.1%	2	5	3.9258	.48034	.231
ITN2: At this bank, our IT staff are encouraged to be the most creative IT department in the commercial banking sector.	0%	1.6%	8.1%	83.2%	7.1%	2	5	3.9581	.46375	.215
ITN3: The bank's DT program allows the bank to produce new products constantly	0.3%	0.3%	8.5%	84.8%	6.1%	1	5	3.9387	.40160	.161
ITN4: Our IT innovations increase the quality of current products	0%	0.3%	5.5%	86.5%	7.7%	2	5	4.0161	.38127	.145
ITN5: The bank's IT innovations give it an edge in marketing over the competition	0%	0.3%	7.4%	86.5%	5.8%	2	5	3.9774	.38095	.145

Note: N = 310, SD = Strongly Disagree; DA = Disagree; AG = Agree; SA = Strongly Agree.

Notably, Table 28 above reveals that while the IT innovation mean scores ranged from 3.9258 (ITN1) to 4.0162 (ITN4), the highest mean was recorded on ITN4. This indicated strong agreement that IT innovations enhance product quality. Furthermore, the data reveal that the standard deviations of all the items in this construct were low, ranging from 0.38095 (ITN5) to 0.48034 (ITN1), indicating a significantly high level of consensus. Results shown in this table confirm that commercial bank employees in Zimbabwe have consistently positive perceptions of IT innovation in their banks, as indicated by the low variance values that ranged from 0.145 to 0.231.

These indicate that the majority of the sampled respondents agreed (82.83%) that their bank's DT produced IT innovations of superior quality to the competition. 83.2% of the respondents also concurred that their bank's IT staff were encouraged to be the most creative IT

department in the commercial banking sector. 84.8% of respondents agreed that their bank's DT program allowed the bank to constantly produce new. Further, the bulk of the respondents (86.5%) agreed that their bank's IT innovations increased the quality of their existing products. Similarly, 86.5% of the study respondents agreed that their bank's IT innovations gave it an edge in marketing over the competition.

4.4.5. Descriptive Statistics on Commercial Bank Performance

The Commercial Bank Performance construct was measured using five items (CBP1 to CBP5). Table 29 presents the descriptive statistics for each item.

Table 29

Descriptive Statistics for Commercial Bank Performance

Measurement Item	SD	DA	UC	AG	SA	Min	Max	Mean	Std. Deviation	Variance
CBP1: Over the previous three years, our bank's performance as evaluated by the return on investment (ROI) has been better than the competition.	0%	0.6%	10.3%	84.8%	4.2%	2	5	3.9258	.40743	.166
CBP2: Over the past 3 years, our bank's expenses and costs have been lower than our competitors	0%	0.6%	6.1%	88.4%	4.8%	2	5	3.9677	.35834	.128
CBP3: The bank's digital transformation initiatives have seen an increase in customer satisfaction over the past 3 years.	0%	1%	7.7%	85.2%	6.1%	2	5	3.9645	.40470	.164
CBP4: Over the past 3 years, our bank's net profit has been higher than our competitors due to digital transformation initiatives.	0%	0.3%	7.4%	87.4%	4.8%	2	5	3.9645	.36252	.131
CBP5: The bank experienced revenue growth that exceeded the competition during the past three years.	0%	1.3%	6.8%	87.1%	4.8%	2	5	3.9613	.40839	.167

Note: N =310, SD = Strongly Disagree; DA = Disagree; AG = Agree; SA = Strongly Agree.

The mean scores for the Commercial Bank Performance construct in Table 29 above show that they ranged from 3.9258 (CBP1) to 3.9677 (CBP2). It can be seen that CBP2 had the highest mean, suggesting that commercial bank employees in Zimbabwe view their banks as having a cost advantage. CBP1, which explicitly references ROI, had the lowest mean among the performance items (3.9258), though it remains strongly positive. The low standard deviations (ranging from 0.36252 to 0.40743) indicate exceptionally high consensus among the respondents regarding the bank's performance. In addition, the variance values (0.128 to 0.167) were low, confirming that the perceptual performance data were highly consistent.

Further analysis shows that 88.4% of the study respondents concurred that their bank's expenses and costs have been lower than those of their competitors for the past three years. It is reported in the same table that the highest proportion of respondents (85.2%) agreed with the assertion that their bank's digital transformation initiatives resulted in an increase in customer satisfaction over the past 3 years. 87.4% of the respondents agreed that the reason for the higher net profit than the competition was attributed to their bank's DT initiatives. In the same vein, 87.1% of the participants agreed that their bank experienced revenue growth that exceeded the competition during the past three years.

4.4.6. Discussion of Results from Descriptive Data Analysis

This study considered five variables, and these were Digital Transformation, Employee Productivity, IT Capability, IT Innovation and Commercial Bank Performance. The descriptive statistics presented in Tables 25 to 29 provide a comprehensive overview of the response patterns for each observed variable in the study. The results show that across the five constructs, the mean scores for the individual items were consistently above the 2.5 midpoint, ranging from a low of

3.85 (DT3) to a high of 4.02(ITN4). This suggests that on average, respondents held positive perceptions of their banks' DT efforts and the subsequent performance.

The standard deviations for all 25 items were also relatively low. These ranged from 0.30 to 0.55, suggesting a strong degree of consensus among the 310 respondents. Furthermore, this indicates that data are normally distributed around the mean, which is a favourable condition for the subsequent Structural Equation Modelling (SEM) analysis. The lowest standard deviation was observed for items related to CBP, suggesting that the employees from Zimbabwean commercial banks held consistent views on their banks' financial and operational performance.

In essence, the descriptive analysis confirms that the sample data are suitable for further statistical analysis and provides a solid foundation for testing the hypothesised relationships in the structural model.

These results resonate with the Technological acceptance theory, where prior studies have suggested that DT results in improved commercial bank performance. If bank employees accept technology, they are likely to perform better (İslatince, 2023; Vuković et al., 2019). Additionally, the dynamic capabilities theory has supported that DT aids IT Innovation (Marx et al., 2021), which agrees with the perceptions of the respondents in this study. Although the fact that DT positively impacts employee productivity has been contested in the literature due to it being perceived as inducing stress to employees (Kadur & Rajshekar, 2022), these results were expected given the massive support by the theoretical framework as well as prior studies that DT positively impacts commercial bank performance (Adhikari et al., 2022; Zuo et al., 2021).

The descriptive analysis indicates that the respondents from Zimbabwean commercial banks were consistent in their perception that employee productivity positively impacts commercial bank performance. This chimes with several studies (Khan et al., 2022; Kumaran et

al., 2023; Shi et al., 2024) that have suggested that employee productivity does positively influence commercial bank performance.

The descriptive results indicate that respondents concurred that IT capability is crucial in mediating the link between DT and commercial bank performance. These results were not surprising given that the dynamic capabilities theory has been advanced as supporting the notion that IT capability can be used as a dynamic capability to drive performance in a commercial bank (Nousopoulou et al., 2022; Vial, 2019). The results in this study also agree with this theory, as it supports the mediating role played by IT capability, positively impacting commercial bank performance (Rostika, 2023). Similarly, the digital orchestra framework has posited that IT capability orchestrates the relationship between DT and commercial bank performance (Khin & Ho, 2019; Li et al., 2023), and this seems to agree with the study results above.

The results once again suggested that the respondents from Zimbabwe's commercial banks concurred that IT Innovation had a positive impact on commercial bank performance. These views seem to find support from the dynamic capabilities theory, which views some dynamic capabilities as innovation-based (Warner & Wäger, 2019). Further, studies have pointed out that innovative banks perform better, thus elevating the influence of IT innovation on commercial bank performance (Cheng et al., 2023). Empirical studies have also shown that IT innovation aids commercial bank performance by cementing competitive advantage, aids survival in turbulent times, and allows banks to respond better to customer needs, thereby enhancing market share (Bakri et al., 2024; Huang & Yang, 2019; Lahiri, 2022; Vedapradha & Hariharan, 2021).

4.5. Triangulation of Descriptive Results with Objective Financial Data

This study collected secondary data on Return on Assets (ROA) to complement the perceptual data gathered from the commercial bank employees survey. This was seen to enhance

the validity of the study results (Swarooprani, 2022). ROA was selected, given that it is a standard and publicly available metric of financial performance that reflects a bank's efficiency in generating profits from deploying its assets. The data collected from the 13 commercial banks allowed for comparison between the subjective performance assessments of employees and the objective financial outcomes.

4.5.1. Aggregate Comparison: Perceived Versus Objective Performance

The survey results showed a uniform perception of commercial bank performance, with mean values ranging from 3.9258 to 3.9677 (Table 29) and low standard deviation (values of 0.35834 to 0.40839). Furthermore, employees across the Zimbabwean commercial banking sector agreed that their banks performed well on metrics like ROI, cost control and profit.

Nonetheless, the objective ROA data (Appendix I), summarised by the market average, offers an interesting point of comparison. The average ROA for the sector was 16.01%, 33.30% and 24.65% (for years 2022, 2023, and 2024, respectively). These figures indicate that the sector was experiencing strong performance, especially in the years 2023 and 2024.

In essence, the positive perceptions of performance captured in the survey are thus validated by the objective financial data. The strong financial results (as depicted by high ROA) provide a somewhat tangible basis for the employees' assessments of their banks' ROI, net profit and revenue growth relative to competition.

4.5.2. Bank Level Comparison

While the survey data were anonymised at the bank level, the secondary data allowed for a more nuanced observation. For example, while Banks 1 and 9 recorded very high 3-year average ROAs of 39.83% and 46.84%, respectively, Bank 11 recorded a much lower average ROA of 8.83%, including a negative ROA in 2024. This variation in objective performance illustrates that

the average perception (grand mean of 3.96 – Appendix J) may mask significant underlying differences in performance outcomes across the sector.

This variation does align with the study's conceptual model, which posits that differences in the independent variables should lead to variances in performance. The objective ROA data confirm that performance in the Zimbabwean commercial banking sector is not uniform, thereby lending external validity to the study's premise that it is valuable to investigate factors like DT and IT capability that may assist in explaining these performance disparities. The results obtained in hypothesis testing can thus be interpreted as explaining the drivers behind these differences in ROA.

Overall, the inclusion of secondary data in the form of objective ROA helped triangulate the primary survey results. The strong financial performance of the sector objectively confirms the positive sentiment expressed by the employees. The application of the mixed-methods approach to measuring performance, that is, combining survey perceptions with objective financial metrics, significantly strengthens the credibility of the conclusions from the study regarding the interaction between DT and commercial bank performance, considering the mediation of IT capability.

4.6. Hypothesis Testing

The results of the study's attendant hypothesis testing are presented in this section. The hypothesis testing examined the hypothesised relationships between the variables outlined earlier. The research framework presented in Figure 2 spawned eight hypotheses used to investigate the interplay between DT and commercial bank performance, considering the mediating effects of IT capability. Specifically, the complex interaction between DT and employee productivity, DT and IT Capability, DT and IT Innovation, IT Innovation and commercial bank performance, DT and commercial bank performance, employee productivity and commercial bank performance, IT

capability and commercial bank performance, as well as the mediating impact of IT capability on the relationship between DT and commercial bank performance.

To arrive at the study conclusions, these hypotheses were tested using a combination of confirmatory factor analysis (CFA) and structural equation modelling (SEM). Specifically, CFA was used to validate the applicability of the measurement model so as to confirm that the observed variables adequately capture the latent constructs (Che Haron@Shafiee et al., 2023; Karim, 2023). Having done so, SEM was applied to test the structural relationships subsisting between the study variables, thereby giving some insights into the hypothesised pathways (Gunzler et al., 2021). Consequently, the results of the hypothesis testing were provided to give empirical evidence for or against each of the eight hypotheses.

4.6.1. Exploratory Factor Analysis (EFA)

This study applied the Kaiser–Meyer–Olkin (KMO) to assess the suitability of the data for Confirmatory Factor Analysis. According to Hair et al. (2021), the KMO values range from 0 to 1, with values greater than 0.5 considered adequate, while those closer to 1 are considered better values. To complement the KMO, the suitability of the data for factor analysis was also tested using Bartlett’s Test of Sphericity. The results obtained from these two investigations (Table 30) were applied to determine the applicable standard needed to conduct factor analysis.

Table 30

KMO and Bartlett’s Test

Item	Value
Kaiser-Meyer- Olkin Measure	0.88
Approximate chi-square	759.60
Bartlett’s Test of Sphericity	Df 300
Sig.	.000

The KMO value turned out to be 0.88 (Table 30). This exceeded the 0.5 minimum and was closer to 1. This was supported by Bartlett's Sphericity, which turned out significant at $p = 0.000$ (which is less than 0.05), confirming that the sample was suitable for running the factor analysis.

4.6.2. Confirmatory Factor Analysis (CFA)

Prior to conducting factor analysis, the suitability of the data was assessed using the Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. As shown in Table 30, the KMO value was 0.88, exceeding the minimum recommended threshold of 0.50 and indicating that the data were adequate for factor analysis. Furthermore, Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 759.60$; $Df = 300$; $p < 0.001$), confirming that the correlation matrix was suitable for factor analysis.

Having established that the collected data were suitable for factor analysis, SPSS Amos (version 26) was applied to run the CFA for the model. CFA was applied to achieve study model accuracy as well as to inspect how the observed indicators relate to the observed latent variables. As Sanchez et al. (2020) observe, CFA enables researchers to assess the goodness of fit of the research model in the context of a group of observed measures.

Figure 11

Confirmatory Factor Analysis

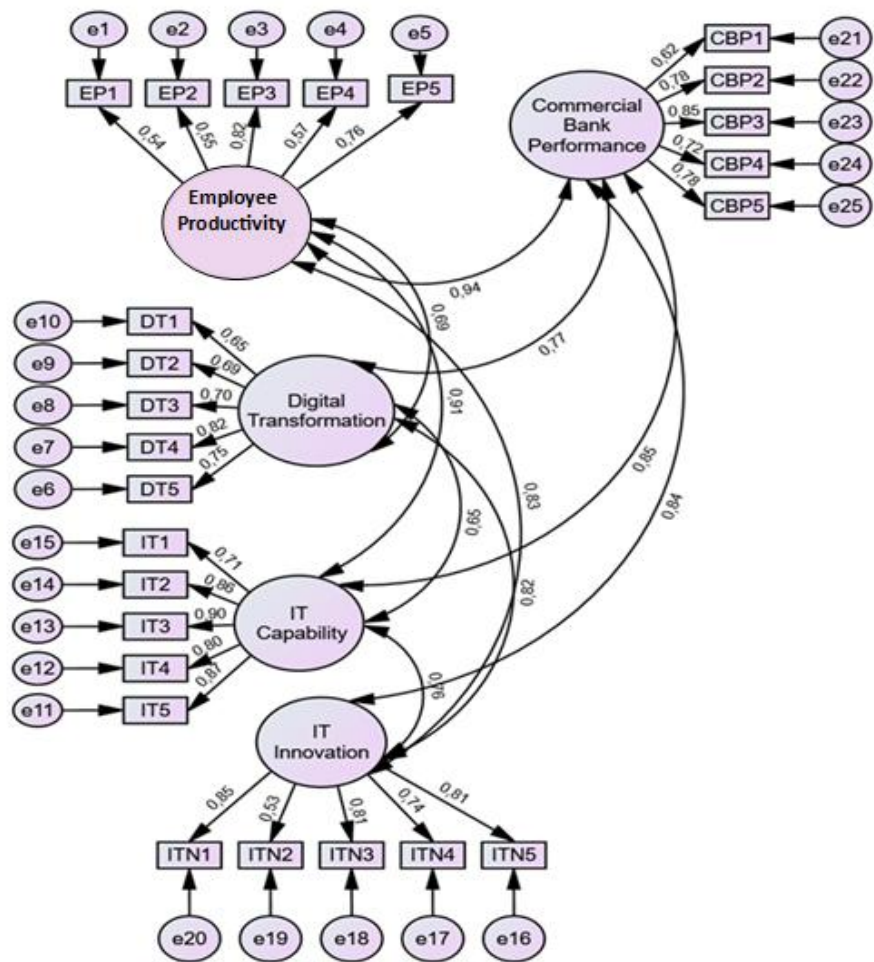


Table 31 presents the model fit summary (CMIN). The table shows that the researcher’s model met the requirements of the saturated model, confirming an acceptable fit. The normed chi-square (CMIN/DF) of 2.532 lies within the acceptable range of less than 3 (McNeish & Wolf, 2023).

Table 31*Model Fit Summary*

Model	NPAR	CMIN	Df	P	CMIN/DF
Default model	88	118.483	300	.000	2.532
Saturated model	377	.000	0		
Independence model	26	2077.896	351	.000	5.920

4.6.3. Structural Equation Modelling (SEM)

Hypothesis testing was done using the structural equation model (SEM) (Shehadeh et al., 2023; Thuy, 2020) through the use of SPSS Amos 26. As can be seen from the above hypotheses, seven of them hypothesised direct relationships while one had an indirect or mediating relationship. However, before carrying out the SEM analysis, it was essential to establish the overall fit of the model.

4.6.3.1. SEM Model Fit Assessment

Before interpreting the structural relationships, the overall fit of the structural equation model was assessed to determine whether the proposed model adequately represents the observed data. To test this, this study hypothesised the following regarding the study model:

H₀: The hypothesised model fits the observed data adequately as indicated by $CFI \geq 0.95$, $CMIN/Df \leq 3$, $NFI \geq 0.95$, $IFI \geq 0.90$, $TLI \geq 0.95$, and $RMSEA \leq 0.8$.

H₁: The hypothesised model does not fit the observed data adequately ($CFI < 0.95$, $CMIN/Df > 3$, $NFI < 0.95$, $IFI < 0.90$, $TLI < 0.95$, and $RMSEA > 0.8$).

Specifically, in order to assess the extent to which the model was fit, various indices were applied. These included Chi-Square divided by the degree of freedom (CMIN/Df), NFI (Normed Fit Index), IFI (Incremental Fit Index), TLI (Tucker-Lewis Index) and the RMSEA (Root Mean Square Error of Approximation), and the results indicated that the model was good as it satisfied

the limits identified in prior studies (Cucos, 2022; Hair et al., 2021; Karim, 2023). Several authors (Joensuu-Salo & Matalamäki, 2023; Shehadeh et al., 2023; YuSheng & Ibrahim, 2020) posit that RMSEA values of less than 0.8, CFI values greater than 0.95, TLI values exceeding 0.95, IFI values greater than 0.9, NFI values greater than 0.95, and CMIN/DF values less than three exhibit excellent fit.

The model test results show that the NFI (0.961), the TLI (0.952) and the CFI (0.985) all exceeded the benchmark value of 0.95, while the IFI (0.935) exceeded the 0.9 benchmark. In addition, the RMSEA (0.0731) was less than 0.8 while the CMIN/Df (2.532) was below the 3-cutoff level. Collectively, these indices indicate that the structural model fits the observed data well and is suitable for interpreting the estimated path coefficients. As a result, the study accepted the null hypothesis that the hypothesised model fits the observed data adequately as indicated by $CFI \geq 0.95$, $CMIN/Df \leq 3$, $NFI \geq 0.95$, $IFI \geq 0.90$, $TLI \geq 0.95$, and $RMSEA \leq 0.8$. Table 32 below presents the model fit indices and shows that the p-value was significant at 0.001.

The structural model as well as the hypothesis tests (Tables 33 and 35) are interpreted with confidence because the measurement model demonstrated sufficient reliability and validity as reported in Tables 15, 16 and 17.

Table 32

Kaiser–Mayer–Olkin (KMO) and Bartlett’s Test

Measuring Index	Value	Acceptance Level	p-Value
CMIN/Df	2.532	>0.05	0.001
NFI	0.961	>0.95	0.001
IFI	0.935	>0.90	0.001
TLI	0.952	>0.95	0.001
CFI	0.985	>0.95	0.001
RMSEA	0.0731	<0.80	0.001

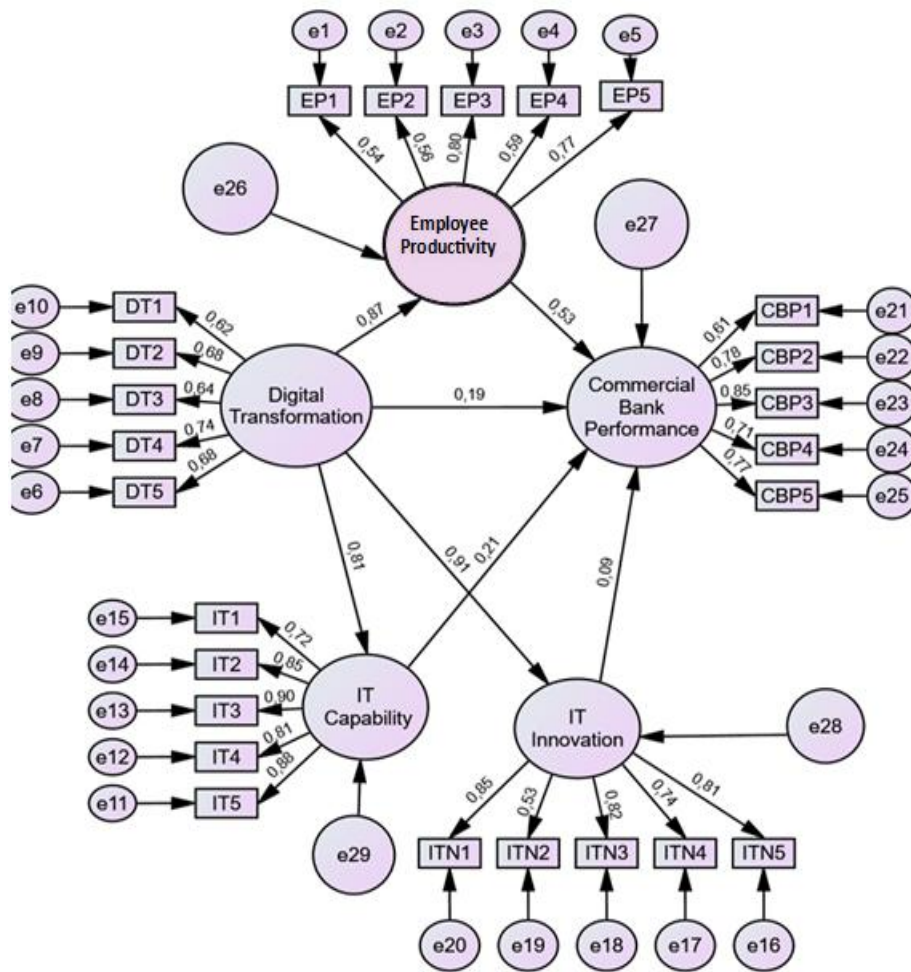
Note: χ^2 =Chi-Square Statistic, NFI=Normed Fit Index, IFI=Incremental Fit Index, TLI=Tucker-Lewis Index, RMSEA=Root Mean Square Error of Approximation, Df = Degrees of Freedom.

4.6.3.2. Structural Path Coefficients

This subsection reports the estimated structural relationships between digital transformation, IT capability, employee productivity and commercial bank performance based on the structural equation modelling results presented in Figure 12.

Figure 12

Structural Equation Modelling for the Study Hypotheses



i. Evaluating the Path Relationships

According to the regression weights generated in the path analysis presented in the table above, it can be observed that the major direct influence on the performance of commercial banks

in Zimbabwe is employee productivity (standardised beta of 0.53), followed by IT capability (0.21), and DT (0.19). Surprisingly, IT Innovation returned the least influence with a standardised beta of 0.09. On its own, DT's most influence is on the capacity of commercial banks to innovate (standardised beta of 0.91), followed by employee productivity (0.87) and lastly IT capability (0.81).

Table 33

Standardised Beta Values, P-Values and T-Values

Path		Standardised Beta Value	p-Value	(t-value)
Digital Transformation	----> Employee Productivity	0.87	0.001	3,345
Digital Transformation	----> IT capability	0.81	0.001	3.256
Digital Transformation	----> IT innovation	0.91	0.001	3.365
IT innovation	----> Commercial Bank Performance	0.09	0.001	2.067
IT Capability	----> Commercial Bank Performance	0.21	0.001	2.875
Employee Productivity	----> Commercial Bank Performance	0.53	0.001	3.346
Digital Transformation	----> IT capability ----> CBP	0.17	0.001	2.356
Digital Transformation	----> Commercial Bank Performance	0.19	0.001	2.456

Table 33 above presents the t-values generated in the statistical analysis. This was important so as to test the null hypothesis that the true population path coefficient is zero, thereby confirming that there is no linear relationship between the study constructs. According to Savalei (2024), t-values greater than 2 provide significant strength of evidence against the null hypothesis. As can be seen from the table above, all t-values in this study are substantial (ranging from 2.067 to 3.346), and they correspond to significant p-values (0.001), allowing for a confident rejection of the null hypothesis.

That as it may, it can be observed from the analysis that while all the paths are statistically significant, the outcome is not uniform. Indeed, the paths from DT to the immediate variables (Employee Productivity, IT Capability, IT Innovation) have the largest t-values (3.345, 3.256 and

3.365, respectively), suggesting that these coefficients were estimated with the highest precision relative to their size, providing the most robust evidence within the study model. On the other hand, the path of IT Innovation to CBP had the smallest t-value (2.067). While it remains statistically significant, the standardised beta (0.09) suggests that the estimate had a larger standard error, making it the least precisely estimated relationship and potentially the most sensitive to model specification.

ii. Explained Variance (R^2)

The explanatory power of the structural model was assessed using squared multiple correlations (R^2). This was achieved by computing the R-squared values, which often range between 0 and 1. A value of 0 shows that the regression line does not fit the data, while a value of 1 shows that the line perfectly fits the data; thus, studies must attempt to achieve values closer to 1.

Table 34

The Squared Correlations for the Latent Variables

Latent Variable	R	R-Squared	Std Error of the Estimate
Employee Productivity	0.87	0.756	0.49
IT Capability	0.81	0.656	0.59
IT Innovation	0.91	0.828	0.41
Commercial Bank Performance	.783	.613	.5336

Digital transformation accounted for 75.6% of the variance in employee productivity ($R^2 = 0.756$), and 65.6% of the variance in IT capability ($R^2 = 0.656$), and 82.8% in IT Innovation ($R^2 = 0.828$). Collectively, the model explained 61.3% ($R^2 = 0.613$) of the variance in commercial bank performance, indicating strong explanatory power of the proposed model.

This study applied the SEM model to establish the R-squared value for the latent variables. According to Hair and Alamer (2022), the R-squared values generated by SEM represent the

combined effect of all the predictors and cannot be isolated to a single one. As indicated in Table 34, the R^2 values were all closer to 1, thus showing that the regression line was a good fit. All the variables had an R-squared value above 0.6, suggesting a good model fit and lower standard error.

4.6.4. Hypothesis Testing Results

Prior to interpreting the structural path coefficients and testing the hypotheses, the measurement model was validated to ensure the constructs were distinctly and reliably measured. As reported in section 4.2.5 and Tables 15, 16, and 17, all constructs demonstrated good internal consistency (Cronbach's Alpha > 0.78, CR > 0.79), adequate convergent validity (AVE > 0.52), and satisfactory discriminant validity (square root of AVE greater than inter-construct correlations). This establishes that the latent variables (Digital Transformation, Employee Productivity, IT Capability, IT Innovation, Commercial Bank Performance) were measured with sufficient accuracy and minimal overlap. Consequently, the subsequent estimates of the relationships between these constructs in the structural model (path coefficients) can be interpreted with greater confidence, as the measurement error and construct ambiguity have been psychometrically addressed.

This section presents the results obtained from testing the 8 study hypotheses. This study sought to test the following null hypotheses.

H₀₁: There is no significant relationship between DT and the performance of commercial banks in Zimbabwe.

H₀₂: There is no significant relationship between DT and the IT capability of Zimbabwean commercial banks.

H₀₃: There is no significant relationship between DT and the productivity of employees in Zimbabwean commercial banks.

H₀₄: There is no significant relationship between DT and IT innovation by Zimbabwean commercial banks.

H₀₅: There is no significant relationship between IT innovation and the performance of Zimbabwean commercial banks.

H₀₆: There is no significant relationship between IT capability and the performance of Zimbabwean commercial banks.

H₀₇: There is no significant relationship between employee productivity and the performance of commercial banks in Zimbabwe.

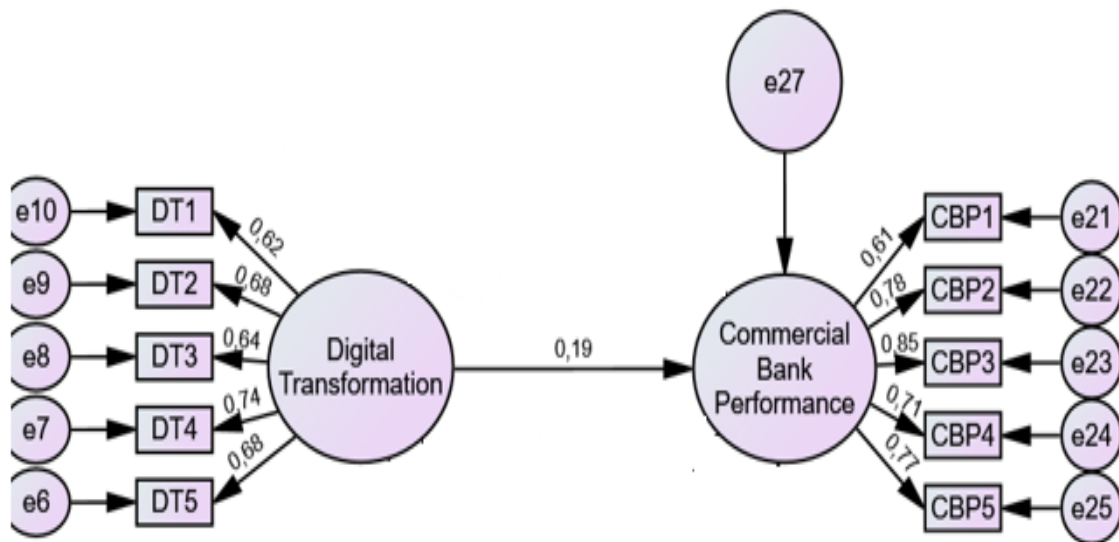
H₀₈: IT capability does not mediate the relationship between DT and commercial bank performance in Zimbabwe.

4.6.4.1. Null Hypothesis 1: There is no significant relationship between DT and the performance of commercial banks in Zimbabwe.

Firstly, this study sought to test the relationship between DT and Commercial Bank performance in Zimbabwe. Again, SEM was applied. Based on the reliable measures established earlier (Tables 15 to 170), the path analysis results are shown in Figure 13. The analysis reveals that the β of the path is 0.19 and was statistically significant at $p = 0.001$ and $t = 2.456$. This finding suggests that the direct impact of DT on the performance of commercial banks in Zimbabwe, although positive, is somewhat weak. Its immense value may thus be indirect through other factors (such as EP, ITC, ITI). This can be seen by the R^2 for CBP, which stood at 0.613, showing that the combined effect of DT and the other study variables strongly influences CBP variance by 61.3%. Given this positive outcome, the study accepted the alternative hypothesis and rejected the null hypothesis.

Figure 13

Structural Equation Modelling Showing Interconnection Linking DT and Commercial Bank Performance

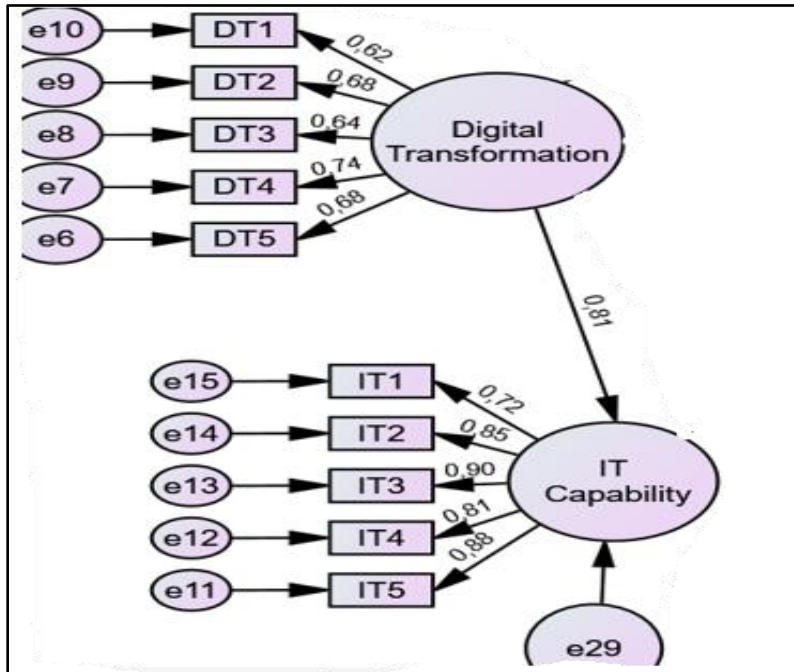


4.6.4.2. Null Hypothesis 2: There is no significant relationship between DT and the IT capability of Zimbabwean commercial banks.

The second hypothesis in this study concerned the association between DT and the IT capability of commercial banks in Zimbabwe. As shown in Tables 15 to 17, this path returned both valid and reliable results. It was established from the study results that DT transformation has a significant positive bearing on the IT capability of the bank since the results returned a Beta value of 0.81, a p-value of 0.001, an R^2 value of 0.656 and a t-value of 3.256. These results show a very strong direct relationship, suggesting that DT substantially enhances commercial banks' underlying IT capability, such as infrastructure and skills. Similarly, the high R-squared value of 0.656 indicates that DT strongly explains the variance in IT capability. Consequently, the null hypothesis was rejected. The SEM results are shown in Figure 14 for this direct relationship.

Figure 14

Structural Equation Modelling Showing Interconnection between DT and IT Capability

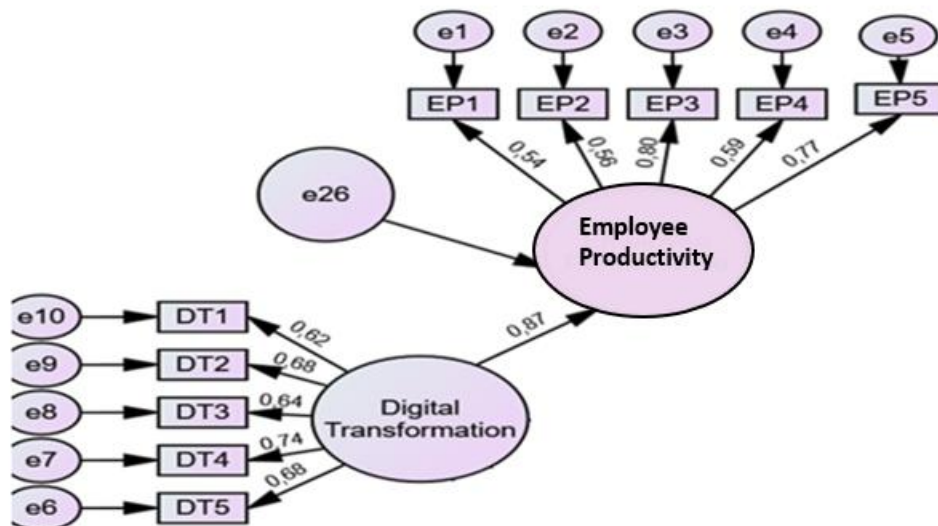


4.6.4.3. Null Hypothesis 3: There is no significant relationship between DT and the productivity of employees in Zimbabwean commercial banks.

As demonstrated in Tables 15 to 17, the SEM results rest on established reliability and validity metrics. The SEM results depicted in Figure 15 show that the relationship between DT and employee productivity is not only positive, but it is also statistically significant ($\beta = 0.87$, $p = 0.001$, $t = 3.345$). The beta of 0.87 implies that for every single standard deviation in DT, employee productivity increases by 0.87 standard deviations. Both the highly significant p-value and the large t-value (higher than the 2-cutoff level) show that this is a robust finding, confirming that DT is a primary driver of employee productivity. This aligns with the high R-squared value for EP, which turned out to be 0.756, indicating that DT explains the majority of the variance in EP. These results provided a valid reason for rejecting the null hypothesis.

Figure 15

Structural Equation Modelling Showing the Interconnection between DT and Employee Productivity

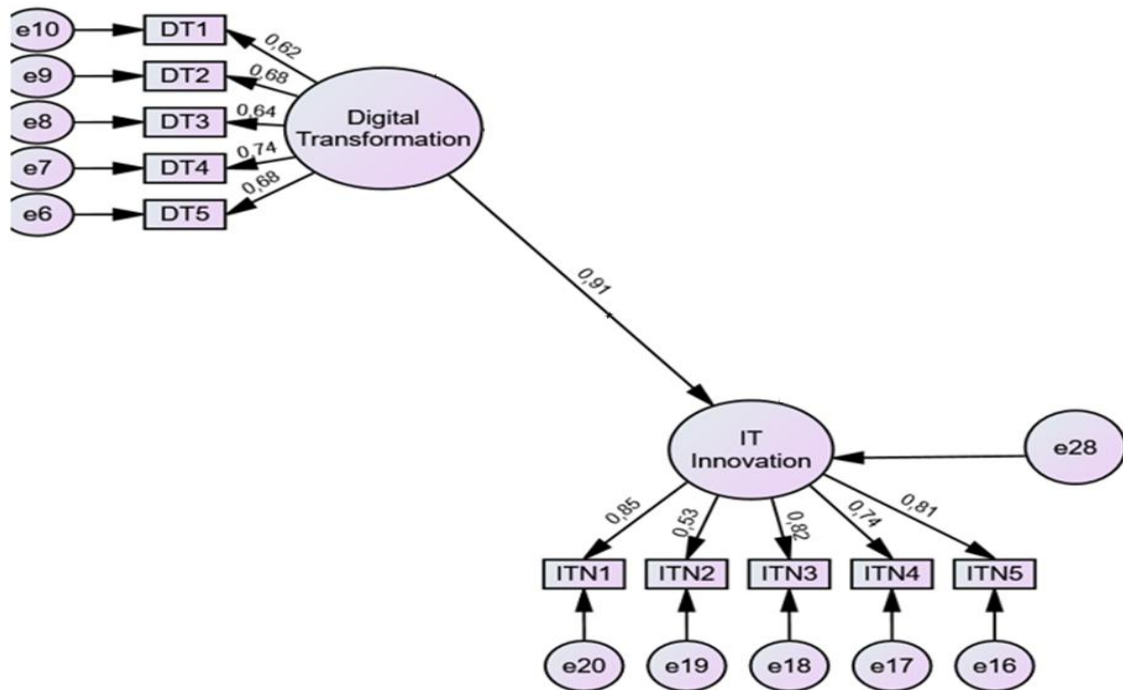


4.6.4.4. Null Hypothesis 4: There is no significant relationship between DT and IT innovation by Zimbabwean commercial banks.

This study hypothesised that there is no linkage between DT and IT innovation of commercial banks in Zimbabwe. The results can be interpreted with confidence, given the reliable and valid results tested and presented in Tables 15 to 17. As can be deciphered from Figure 16, the results showed a strong and significant relationship, given the high beta of 0.91, a p-value of 0.001 and a t-value of 3.365. This came out as the strongest path in the model. This powerful relationship was confirmed by the significant p-value as well as a high t-value. This result suggests that a unit increase in DT results in a 91% rise in IT Innovation. As a result, the study rejected the null hypothesis and accepted the alternative hypothesis that the impact of DT on IT innovation by Zimbabwean commercial banks is positive and significant.

Figure 16

Structural Equation Modelling Showing Interconnection Between DT and IT Innovation

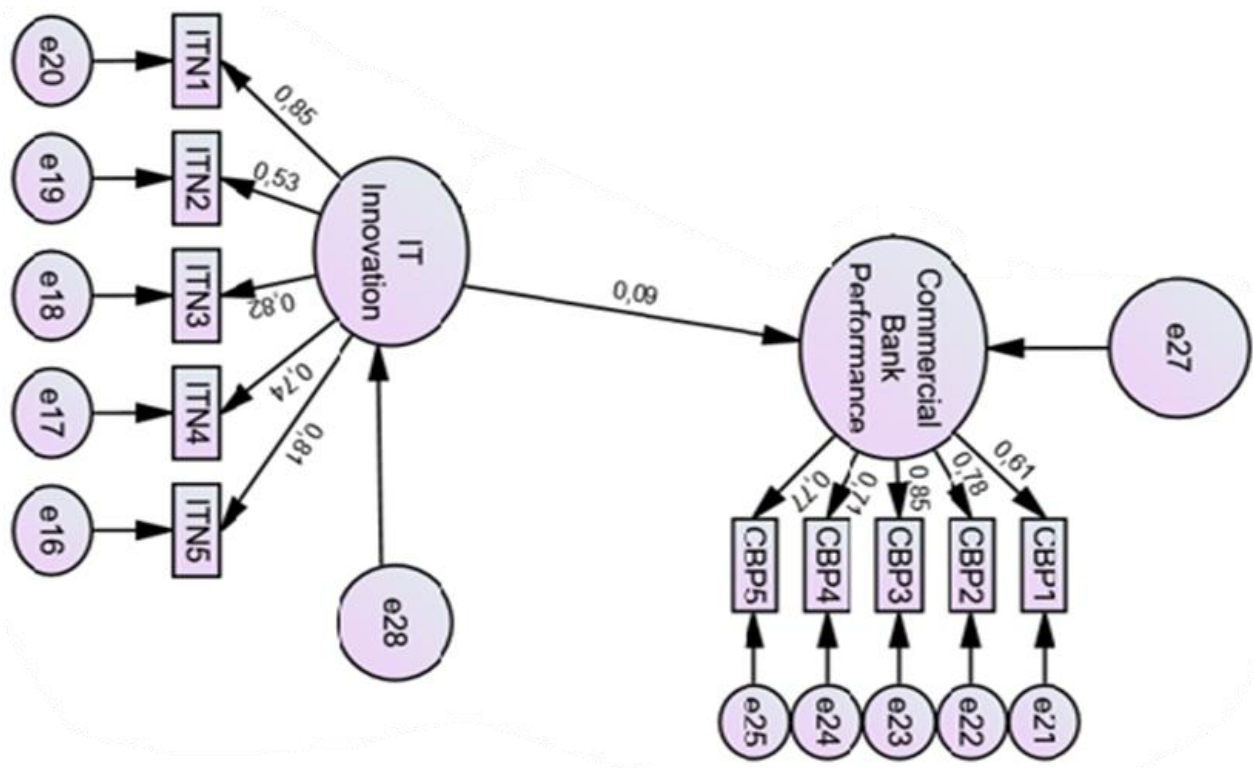


4.6.4.5. Null Hypothesis 5: There is no significant relationship between IT innovation and the performance of Zimbabwean commercial banks.

Confirmed by the discriminant validity results (Table 17), this study employed the SEM analysis of the connection between IT innovation and commercial performance, which came out positive, although not that strong. The results returned a beta of 0.09 and a p-value of 0.001. This confirmed the statistical significance of this relationship. The t-value was just above the cut-off level of 2, coming out at 2.067. A low beta of 0.09 hints that IT Innovation alone does not have a strong impact on overall commercial bank performance in Zimbabwe. That as it may, the overall R^2 of IT innovation and other studied variables turned out fairly high at 0.613, indicating potential positive influence. As a result, the study rejected the null hypothesis. This direct path analysis is shown in Figure 17.

Figure 17

Structural Equation Modelling Showing Interconnection between IT Innovation and Commercial Bank Performance



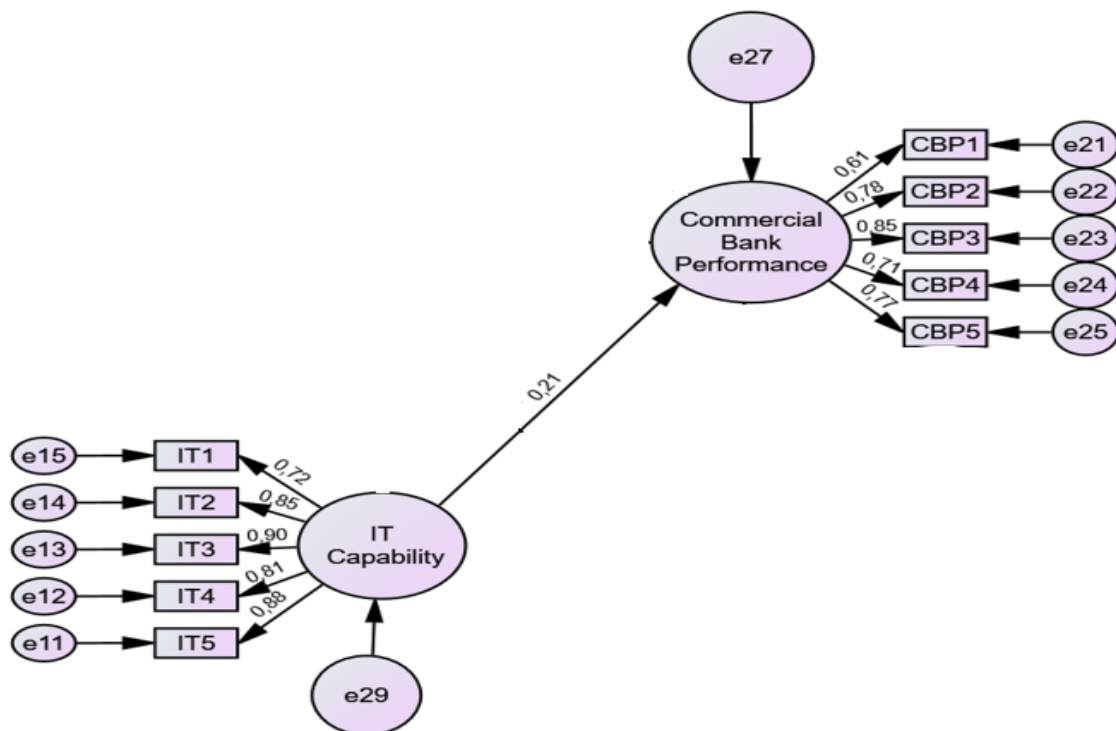
4.6.4.6. Null Hypothesis 6: There is no significant relationship between IT capability and the performance of Zimbabwean commercial banks.

Based on reliable validity and reliability measures (Tables 15 to 17), this study tested the hypothesised relationship that IT capability has a positive and significant influence on commercial bank performance. As shown in Figure 18, path analysis produced a β of 0.21 and a p-value of 0.001. The t-value was 2.875. Again, this was a statistically significant relationship, albeit showing some weak to moderate direct effects. These results suggest that IT capability positively contributes to the performance of commercial banks in Zimbabwe, but the modest beta suggests that it may not be the primary driver. However, the high R-squared of 0.613 on CBP suggests that

IT capability combines with other predictors to explain this high variance in CBP. These results provided justification for rejecting the null hypothesis.

Figure 18

Structural Equation Modelling Showing Interconnection Between IT Capability and Commercial Bank Performance



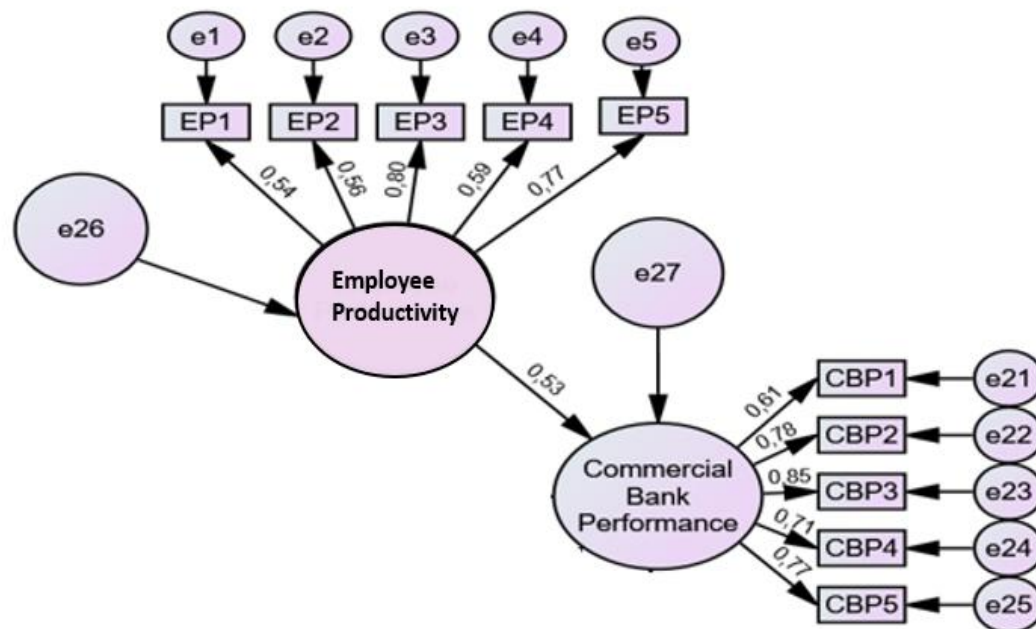
4.6.4.7. Null Hypothesis 7: There is no significant relationship between employee productivity and the performance of commercial banks in Zimbabwe.

As shown in Tables 15 to 17, the validity and reliability metrics for the SEM model were confirmed. Consequently, this study tested the null hypothesis that there is no significant association between employee productivity on the performance of commercial banks in Zimbabwe. The study results produced a β of 0.53, a p-value of 0.001, and a t-value of 3.346. This is a strong, positive and significant direct effect. These results demonstrate that productive

employees have a direct impact on the performance of commercial banks in Zimbabwe. This is supported by the R^2 value for CBP, which came out at 0.613, indicating that the combined effect of the CBP predictors, including EP, explains 61.3% of the variance in the latent variable CBP. The study results led to the rejection of the null hypothesis. The path analysis of this direct relationship is shown in Figure 19.

Figure 19

Structural Equation Modelling Showing Interconnection Between Employee Productivity and Commercial Bank Performance



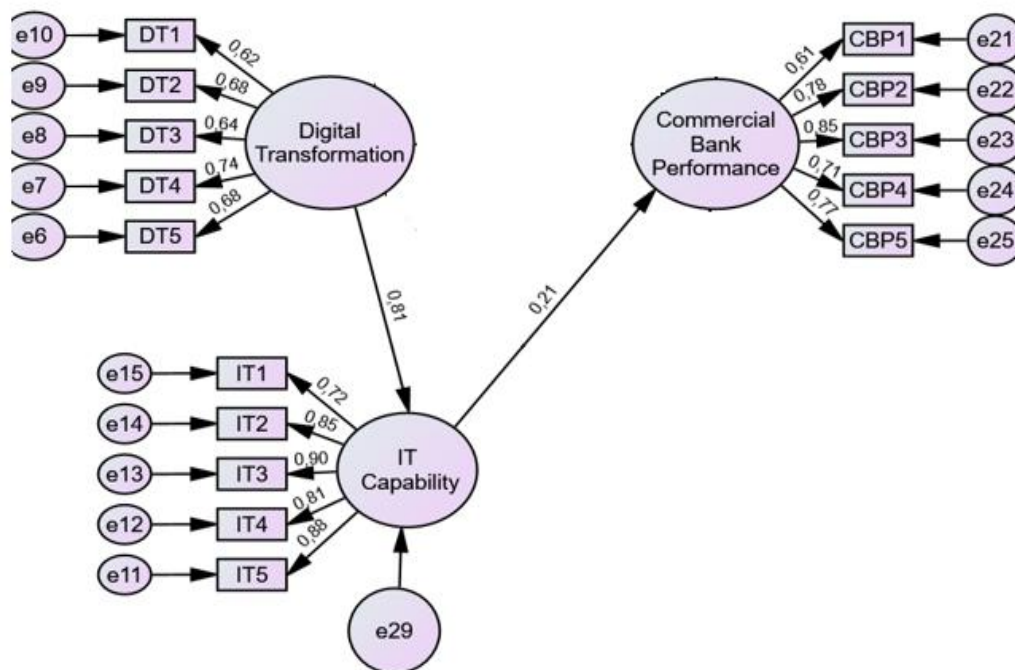
4.6.4.8. Null Hypothesis 8: IT capability does not mediate the relationship between DT and commercial bank performance in Zimbabwe.

This study sought to establish the extent to which IT capability mediates the relationship between DT and Commercial Bank performance in Zimbabwe. This was based on the valid and reliable metrics established in Tables 15 to 17. Again, this was tested using SEM and the two paths

between DT and IT capability, as well as IT capability and commercial bank performance, returned path coefficients of 0.81 and 0.21, respectively (as shown in Figure 20). To test the mediating impact of IT capability, the two coefficients were multiplied, giving an overall result of a β of 0.17, a p-value of 0.001 and a t-value of 2.356. This result is statistically significant. DT boost IT capability ($\beta = 0.81$), which in turn boosts CBP ($\beta = 0.21$). The combined β of 0.17 suggests that IT capability indeed mediates the relationship between DT and commercial bank performance. Consequently, the study rejected the null hypothesis and accepted the alternative hypothesis that the mediating impact of IT capability on the relationship between DT and commercial bank performance in Zimbabwe is positive.

Figure 20

Structural Equation Modelling Showing Mediation of IT Capability on the Link between DT and Commercial Bank Performance



4.6.4.9. Summary of the Hypothesis Testing Decisions

Table 35 below summarises the decision taken on each of the 8 null hypotheses that were tested in this study. These tests were based on a structural model derived from a measurement model that was confirmed to be reliable and valid (see Tables 15 -17). Therefore, the significant paths reflect relationships that are robust and well-measured constructs.

Table 35

Summary of Hypothesis Testing and Decision

Null Hypotheses	Standardised Beta Value	p-Value	Decision
H₀₁ : There is no significant relationship between DT and the performance of commercial banks in Zimbabwe.	0.19	0.001	Reject
H₀₂ : There is no significant relationship between DT and the IT capability of Zimbabwean commercial banks.	0.81	0.001	Reject
H₀₃ : There is no significant relationship between DT and the productivity of employees in Zimbabwean commercial banks.	0.87	0.001	Reject
H₀₄ : There is no significant relationship between DT and IT innovation by Zimbabwean commercial banks.	0.91	0.001	Reject
H₀₅ : There is no significant relationship between IT innovation and the performance of Zimbabwean commercial banks.	0.09	0.001	Reject
H₀₆ : There is no significant relationship between IT capability and the performance of Zimbabwean commercial banks	0.21	0.001	Reject
H₀₇ : There is no significant relationship between employee productivity and the performance of commercial banks in Zimbabwe	0.53	0.001	Reject
H₀₈ : IT capability does not mediate the relationship between DT and commercial bank performance in Zimbabwe	0.17	0.001	Reject

4.6.5. Discussion of Results from Testing the Study's Null Hypotheses

As presented earlier, this study developed eight hypotheses based on five study variables. These hypotheses sought to aid the inquiry into the impact of digital transformation on commercial bank performance, considering the mediating impact of IT capability. The results from testing these null hypotheses have been provided earlier. Consequently, this sub-section provides an evaluation of these results, taking into consideration the study theories as well as prior literature evidence.

Prior to evaluating individual hypotheses, the overall structural model fit was assessed. The model demonstrated acceptable goodness-of-fit indices, with a Comparative Fit Index (CFI) of 0.985, Tucker–Lewis Index (TLI) of 0.952, and Root Mean Square Error of Approximation (RMSEA) of 0.0731. These values meet recommended thresholds, confirming the adequacy of the model for hypothesis testing.

4.6.5.1. There is no significant relationship between DT and the performance of commercial banks in Zimbabwe.

Having tested the above null hypothesis, the study results revealed that the connection between DT and commercial bank performance was positive and statistically significant ($\beta=0.19$, $p=0.001$, $t=2.456$). Despite the positive association, the beta value of 0.19 was moderately weak. This result implies that increased DT will lead to a rise in the performance of commercial banks, although to a less significant extent. As indicated earlier, the overall R^2 for the combined variables turned out to be 0.613. This means that on a combined basis, these explain the variance in performance by 61.3%, confirming that DT's direct influence alone is weak.

Nonetheless, the study results lined up with the dynamic capabilities theory presented in Chapter 2. The theory posits that organisations require dynamic capabilities as they implement their DT. Ghosh et al. (2022) argue that these dynamic capabilities enable organisations to implement their DT journeys successfully, thereby impacting performance. According to this theory, the bank's ability to sense, seize and transform digital opportunities in a superior manner through DT will invariably achieve improved performance. Furthermore, DT, which impacts commercial bank performance positively, requires dynamic capabilities so as to be able to innovate and adapt (Chen et al., 2024). According to Rostika (2023), dynamic capabilities allow banks to reconfigure their models as well as processes, thereby resulting in positive performance.

The moderately weak beta of 0.19 was a surprising outcome given the results from other similar studies. In a study by Do et al. (2022) on the impact of DT on commercial bank performance, it was revealed that a positive and significant link between the two variables does exist, thereby supporting this study's results. Xie and Wang (2023) studied DT in Chinese banks, and their results showed that there is a positive and significant association between DT and commercial bank performance. This positive association has been attributed to DT enabling the competitive advantage of commercial banks through a reduction in operational costs through the streamlining of processes (Cappa et al., 2020; Goldfarb & Tucker, 2019; Huang, 2021; Soesilo & Tampubolon, 2023). In addition, DT results in positive organisational performance because it enables resourceful business models (Chen et al., 2021; Qi & Xiao, 2020).

The use of DT by the DBS bank in Singapore saw the bank significantly improve its performance (Sia et al., 2021). According to Brown and Grant (2020), DT improves overall efficiency, resulting in commercial banks optimising their operations and enhancing customer experience. Overall, there is overwhelming empirical evidence supporting the results obtained in this study, showing a positive and significant relationship between DT and commercial bank performance.

While the results from this test showed a positive and significant relationship, there are some contrary findings in the literature regarding the impact of DT on commercial bank performance. According to Shanti et al. (2023), the substantial investment required in implementing DT by commercial banks substantially increases costs, thereby negatively impacting performance. Similarly, Kadur and Rajshekar (2022) conclude that DT induces stress on employees, thereby negatively impacting their productivity, which in turn results in reduced

productivity and bank performance. The reviewed literature seems to provide way more empirical evidence supporting this study's results, thus making the arguments above anecdotal.

Digital transformation was found to have a statistically significant direct effect on the performance of commercial banks ($\beta=0.19$, $p=0.001$, $t=2.456$). This suggests that digital transformation initiatives directly enhance organisational performance. Therefore, the Null Hypothesis was rejected while the alternative Hypothesis is supported.

Overall, the structural model explained a substantial proportion of variance in the endogenous constructs. Digital transformation accounted for 75.6% of the variance in employee productivity ($R^2 = 0.756$), 65.6% of the variance in IT capability ($R^2 = 0.656$), 82.8% of the variance in IT Innovation, and 61.3% variance in commercial bank performance ($R^2 = 0.613$), indicating satisfactory explanatory power of the model.

4.6.5.2. There is no significant relationship between DT and the IT capability of Zimbabwean commercial banks.

Contrary to the second null hypothesis, the study results showed that the connection between DT and IT capability was positive and significant ($\beta=0.81$, $p=0.001$, $t=3.256$). These results indicated that as DT in commercial banks in Zimbabwe improves, it will be accompanied by a corresponding rise in the IT capability of commercial banks in Zimbabwe, thus confirming a very strong and significant direct effect.

The results emanating from testing null hypothesis two find support in both theory and prior empirical studies. The dynamic capabilities theory asserts that digitally transformed organisations will have to enhance their IT capacity; thus, the more organisations seek to implement DT, the more IT capabilities they build (Nousopoulou et al., 2022; Vial, 2019). Because

DT also aims at revamping IT systems (Abdurrahman et al., 2024), the IT capability of the affected banks will be enhanced; thus, the results in this study do align with these theoretical assertions.

Hypothesis testing results emanating from the second hypothesis, which showed that DT positively impacts IT capability, are heavily supported in the literature (Barba-Sánchez et al., 2024; Madanayake & Yapa, 2024; Makovoz & Sergii Lysenko, 2024; Porfirio et al., 2024; Sia et al., 2021). Specifically, Abdurrahman et al. (2024) show that DT allows banks to modernise their IT systems, thus improving their IT capabilities. Studies by Sia et al. (2021) of the DT implementation by DBS Bank in Singapore showed an improvement in the bank's IT capability due to the implementation of DT.

These results were expected given that DT enhances the use of modern technologies such as AI, Big Data Analysis, use of chatbots, cloud computing and IoT (Makovoz & Sergii Lysenko, 2024). Similarly, Wang (2023) concludes that the main essence for commercial banks to implement DT is to enrich their IT capabilities, among other objectives. That DT was found to enhance commercial banks' IT capability was not surprising, given that successful DT implementation calls for the implementation of modern IT infrastructure as well as the capacitation of human resources so that they can leverage the same.

In essence, DT was found to have a significant positive effect on IT capability ($\beta=0.81$, $p=0.001$, $t=3.256$) in the context of this study. This suggests that increased investment in digital initiatives strengthens the technological resources and competencies of commercial banks. Accordingly, the null hypothesis two was rejected while the alternative hypothesis was supported.

4.6.5.3. There is no significant relationship between DT and the productivity of employees in Zimbabwean commercial banks.

The outcomes from testing the above null hypothesis showed an exceptionally strong positive and statistically significant relationship between DT and employee productivity in the context of Zimbabwean commercial banks ($\beta=0.87$, $p=0.001$, $t=3.345$). This suggests that DT is a primary driver of employee productivity in the Zimbabwean commercial banks. The test results chimed with contextual suggestions from the TAM espoused in Chapter 2. According to Vuković et al. (2019), TAM is a valuable framework for illuminating how DT can aid in improving employee productivity. If employees accept and understand the technology instituted by DT, this may simplify their tasks and enhance their performance as well as job satisfaction.

Results from testing null hypothesis one are supported by previous studies. Several authors (Shwedeh et al., 2020; Ridwan et al., 2020) concluded that DT is associated with substantial gains in the performance of commercial bank employees. In the context of commercial bank performance, the role played by employees is vital as they are directly involved with the implementation of DT strategies (Adewumi et al., 2024). In addition, DT has the potential to eliminate inefficiencies in the complex tasks performed by employees in commercial banks, thereby enhancing their performance.

The results concurred with studies by Zuo et al. (2021), who posit that DT in commercial banks streamlines operations, thus aiding employee productivity. Similarly, Li et al. (2024) argue that DT allows bank employees to reduce information search costs, thereby improving their efficiency. Specifically, their study showed that DT improved employee productivity in advancing credit to customers by reducing non-performing loans. This assessment dovetails with the conclusions of the current study concerning null hypothesis one. In addition, these results concur

with findings by Khadragy et al. (2022), whose study concluded that DT improves the performance of commercial bank employees by simplifying tasks. Complex tasks such as forex trading, credit analysis and big data analysis may be simplified through the use of DT-induced applications, thus improving how employees can serve customers.

Although agreeing with several studies, these results are not without contest in the literature. In a study by Kadur and Rajshekar (2022), it was discovered that DT may dent employee productivity due to the stress related to implementing new technologies. This is often exacerbated by the fear of losing their jobs due to the adoption of technology. Equally, Reis and Melao (2023) refute that DT improves the performance of employees, as they may not be ready for the digital technologies.

Overall, the results from this study indicate that digital transformation has a statistically significant positive effect on employee productivity (standardised $\beta = 0.87$, $p = 0.001$, $t = 3.345$). The strength and significance of the relationship confirm that digital initiatives enhance employee productivity within Zimbabwean commercial banks. Therefore, the null Hypothesis three was rejected, and the alternative Hypothesis three was supported.

4.6.5.4. There is no significant relationship between DT and IT innovation by Zimbabwean commercial banks.

The study results established that a significant positive association exists between DT and IT Innovation ($\beta=0.91$, $p=0.001$, $t=3.365$). This path produced the strongest relationship in the model. The results imply that a rise in DT will lead to an improvement in the IT innovation capacity of commercial banks in Zimbabwe. In other words, DT almost directly translates into innovative uses of technology ($\beta=0.91$). While this has been the case in this study, it is essential to validate this with the study theories as well as empirical results from similar studies.

The relationship between DT and IT innovation has been seen to be supported by the dynamic capability theory. It can be said that the study results lined up with the theorised relationship between DT and IT innovation. According to some authors (Cheng et al., 2023; Marx et al., 2021), commercial banks can leverage dynamic capabilities introduced by DT to drive IT Innovation. Furthermore, commercial banks through DT are capacitated to reconfigure and adapt dynamic capabilities to address the rapidly evolving operating environment (Nooteboom, 2022).

A scan of prior literature shows that the results obtained in this study are well supported. Several authors have concluded that DT improves the IT innovation capacity of commercial banks, as suggested by the study results. As Zhao et al. (2024) illuminate, DT can enhance a firm's innovation capacity by reducing agency costs and increasing the risk-taking capacity of the respective firms. Similarly, Chen et al. (2024) support this study's outcome on this hypothesis by concluding that DT in commercial banks may positively impact IT innovation through data-driven approaches that advance innovation and the provision of new ideas that will enhance the development of embryonic IT solutions and services.

Furthermore, Alharbi (2021) argues that DT improves the agility of commercial banks, and this, in turn, capacitates bank IT departments to experiment with new technologies, thereby ensuring fast innovation. According to Hokonya (2024), DT increases innovation by enabling commercial banks to collaborate across different geographical locations. Overall, the results from this test were not surprising given that DT quickens processes such as prototyping, thereby spurring IT innovation.

Overall, the results indicate that digital transformation has a statistically significant effect on IT innovation (standardised $\beta=0.91$, $p=0.001$, $t=3.365$) insofar as Zimbabwean commercial banks are concerned. This suggests that digital transformation initiatives enhance innovation-

related technological activities within Zimbabwean commercial banks. Therefore, the alternative Hypothesis four was supported while the associated null hypothesis was rejected.

4.6.5.5. There is no significant relationship between IT innovation and the performance of Zimbabwean commercial banks.

The result obtained from testing the above null hypothesis showed a statistically significant positive link between IT innovation and the performance of commercial banks in Zimbabwe ($\beta=0.09$, $p=0.001$, $t=2.067$). This result suggested that increasing IT Innovation would result in a corresponding increase in the performance of commercial banks in Zimbabwe. However, while statistically significant, a beta of 0.09 hints at a relatively weak direct impact on CBP.

Nonetheless, the positive impact resonates with the dynamic capability regarding how IT innovation results in improved commercial bank performance. Some studies (Chen et al., 2024; Thuy, 2020; Zhu & Jin, 2023) revealed that through sensing, seizing and transforming, commercial banks are able to implement IT-enabled innovations, leverage IT innovations to develop new banking products and services, as well as deploy IT innovations to reconfigure business processes. This, in turn, assists in improving the performance of commercial banks.

That IT innovation turned a moderately weak impact on CBP was surprising given that IT innovations aligned to AI, predictive analytics, Big Data Analytics, and machine learning, among others, assist commercial banks in harnessing large data sets, and this enables them to implement strategies to gain market share, such as strategic marketing and customer engagement (Dwivedi et al., 2024). Some studies found stronger associations. For example, Lahiri (2024) concludes that IT innovation enables commercial banks to swiftly respond to market customer needs and the changing external environment, thereby enhancing their performance. Similarly, Swathika (2024)

argues that IT Innovation builds an organisation's market share by improving customer satisfaction and operational efficiency, thus ultimately enhancing the commercial bank's profitability.

Furthermore, several other authors (Lahiri, 2024; Srini, 2023; Swathika, 2024) support a stronger association between ITI and CBP by noting that IT innovation allows commercial banks not only to introduce more products but also to go to market earlier than rivals, thereby taking first-mover advantage. This will help them build market share and make the cost of entering the market more expensive for the competition.

In summary, IT innovation was found to have a statistically significant effect on the performance of commercial banks ($\beta=0.09$, $p=0.001$, $t=2.067$). This implies that banks that engage in higher levels of IT innovation are more likely to achieve improved performance outcomes. Therefore, the study rejected the null Hypothesis five and accepted the associated alternative Hypothesis.

4.6.5.6. There is no significant relationship between IT capability and the performance of Zimbabwean commercial banks.

Regarding the above null hypothesis, the test result revealed a statistically significant positive relationship between these two variables ($\beta=0.21$, $p=0.001$, $t=2.875$). The results imply that increasing IT capability will result in a corresponding rise in the performance of commercial banks in Zimbabwe. Nonetheless, a beta of 0.21 indicated a weak to moderate direct effect. The weak to moderate beta of 0.21 was quite surprising given the plethora of literature aligned with the view that IT capability improves CBP.

This study result dovetails with the assertion made by the dynamic capability theory, which supports the fact that IT capability does enhance performance. This is because, as some authors observe (Nousopoulou et al., 2022; Vial, 2019), IT capability can be leveraged as a dynamic

capability to drive performance in commercial banks. By doing so, IT capability is then viewed as an enabler of performance in commercial banks; thus, banks with better IT capability tend to perform better. The impact of IT capability on enhancing performance has produced conflicting results in the literature.

Empirical research has revealed that IT capability positively impacts commercial bank performance, thereby supporting the results in this study. Audy et al. (2023) concluded that IT capability resulted in improved performance of banks in India. Similarly, Hamida (2018), as well as Yaaqub et al. (2023), found that IT capability positively influences commercial bank performance in Bangladesh and Iraq, respectively. This is because IT capability makes accounting systems more efficient and also assists in enhancing operational efficiencies. Tian et al.'s (2023) study supports the outcome of this study. They conclude that IT capability significantly impacts performance.

The studies supporting the results of this inquiry on the influence of IT capability on the performance of commercial banks highlight that this is achieved because IT capability has a significant impact at the process level, which transmits to overall firm performance (Hamida, 2018). In addition, banks are assisted by IT capability to improve their performance as a result of improved operational performance as well as new business value (Rostika, 2023).

Conversely, some previous studies have shown that IT capability alone does not result in improved performance (Saira & Farhan, 2022). Specifically, Rahman's (2017) studies in India concluded that IT capability did not confer a sustained competitive edge as well as result in continuing profitability for firms in major developing economies. These studies, therefore, provide results that deviate from those obtained in this study. That they were done in industries different to banks may provide a reason for this deviation, given that banks are more technologically reliant.

The findings reveal that IT capability has a statistically significant positive effect on commercial bank performance ($\beta=0.21$, $p=0.001$, $t=2.875$). This indicates that strong IT capabilities play a critical role in enhancing organisational performance. Hence, the study rejected the Null hypothesis and accepted the Alternative Hypothesis (H6).

4.6.5.7. There is no significant relationship between employee productivity and the performance of commercial banks in Zimbabwe.

The results from testing the above null revealed a positive and significant link between EP and CBP ($\beta=0.53$, $p=0.001$, $t=3.346$). The study outcome suggested that increasing employee productivity will result in a corresponding rise in the performance of commercial banks in Zimbabwe. These results showed a strong positive and significant direct effect. These results are hardly surprising given the support from various authors as well as both the Dynamic Capabilities and the TAM theories.

The dynamic capabilities theory considers commercial bank employees as dynamic capabilities that are able to adapt to new technologies and initiate and drive change within an enterprise, and this will support innovation and improve organisational efficiencies, thereby enhancing performance (Audy et al., 2023). The commercial banking environment is considered knowledge-intensive, thus making an employee a key dynamic capability due to their knowledge and expertise, problem-solving capacity, collaboration and teamwork capabilities, as well as their ability to adjust to the dynamic environment (Wadajo & Kero, 2023). The dynamic capabilities theory supports the results of this study because it views employees with valuable skills, unique experience and expertise as inimitable and cannot be substituted as possessing the ultimate capacity to confer the commercial bank with the ability to perform better and have long-term effectiveness in dynamic environments (Stein et al., 2023).

The TAM posits that the performance of employees in relation to a particular technology is impacted by their attitude toward the same (Davis, 1989). If employees adapt and understand technology, they are capable of improving the organisational processes, thereby improving performance. This chimes with İslatince (2023), who used TAM to evaluate the attitudes of Turkish bank employees towards banking technology and concluded that their use of technology resulted in better performance for the bank.

The study results are not surprising given that the commercial banking sector is highly dependent on human resources, thus making productivity an important factor in ensuring improved performance (Stein et al., 2023). In their studies, Ali et al. (2021) suggested that employee productivity results in positive commercial bank performance because their intellectual capital makes a significant contribution to innovation, thus driving better performance.

Likewise, several authors provide overwhelming evidence that supports the results produced by this study, that employee productivity positively impacts commercial bank performance (Jahan et al., 2020; Jena, 2022; Perumal & Aithal, 2023; Rahaman et al., 2023). This was attributed to the fact that employees are key in providing excellent customer service. Furthermore, banking operations are generally complex, requiring educated and knowledgeable employees (Rahaman et al., 2023). According to Sia et al. (2021), the successful DT at DBS Bank in Singapore, as evidenced by improved performance, was attributed to employee productivity.

Overall, EP was found to have a statistically significant effect on commercial bank performance ($\beta=0.53$, $p=0.001$, $t=3.346$). This suggests that improvements in employee productivity contribute directly to enhanced organisational performance. Therefore, the alternative Hypothesis Seven was supported, and the null hypothesis was rejected.

4.6.5.8. IT capability does not mediate the relationship between DT and commercial bank performance in Zimbabwe.

Regarding the extent to which IT capability mediates the relationship between DT and commercial bank performance, the results of the study ($\beta=0.17$, $p=0.001$, $t=2.356$) confirmed that IT capability is a critical mediator in the interplay between DT and CBP. This implies that an improvement in IT capability does improve this relationship in the context of Zimbabwean commercial banks. This relationship is supported by the Digital Orchestra Framework (DOF) composed by Matt et al. (2015).

The DOF emphasises the orchestration of IT capabilities on the relationship between DT and commercial bank performance. This theory posits that organisations require IT capability to be able to implement and integrate their DT initiatives, and on its own, IT capability enhances operational efficiency while it drives revenue growth through IT-enabled innovation (Khin & Ho, 2019; Li et al., 2023).

There appears to be overwhelming evidence from prior valid studies (Adam et al., 2021; Castillo-Vergara, 2021) supporting the results obtained on this test. Studies by Valdez-Juárez and Castillo-Vergara (2021) concluded that organisations with superior IT capability are better able to innovate, reduce operational costs, implement successful DT and thereby achieve better performance. The study results line up with Modiba et al. (2022), who argue that the success of DT in South Africa was attributable to IT capability. Similarly, more studies point to the fact that IT capability positively mediates the relationship between DT and commercial bank performance since IT capability allows banks implementing DT to give superior customer service through digital channels thus achieving improved market share (Adam et al., 2021) and enabling

commercial banks to be agile in their DT journeys thus allowing quicker responses to market disruptions which in turn may improve market share (Grover, 2022).

IT capability can therefore be seen as supporting the link between DT and commercial bank performance because it assists banks' DT journeys to achieve better financial metrics (Yudha et al., 2024). Indeed, there is overwhelming empirical evidence from various writers supporting the mediation role that IT capability plays in the relationship between DT and commercial bank performance (Elia et al., 2021; Mekuanint et al., 2024; Schrage et al., 2022; Shanti et al., 2023). This is because IT capability has been seen to be able to enhance translating the DT strategies of commercial banks into measurable and achievable outcomes.

In essence, the indirect effect of digital transformation on commercial bank performance through IT capability was statistically significant ($\beta=0.17$, $p=0.001$, $t=2.356$). These results confirm the mediating role of IT capability. Consequently, Alternative Hypothesis eight (H8) is supported while the accompanying Null hypothesis is rejected.

4.7. Relating Research Questions to Data Analysis Techniques

This study developed 8 research questions. The following section discusses how these research questions were aligned with data analysis techniques. This is important as it ensures that the data analysis techniques help answer the study questions and also ensure reliable research results of better quality (Kim et al., 2024). It is worth mentioning that each research question was framed around the predictor and response variables.

4.7.1. Research Question 1: What is the direct influence of DT on the performance of commercial banks in Zimbabwe?

This question was linked to the hypothesis “The influence of DT on the performance of commercial banks in Zimbabwe is positive and significant”, and to address this study question,

SEM and descriptive statistical analysis were done to examine the interconnection subsisting between DT (explanatory variable) and commercial bank performance (output variable). This was selected because it allowed for the examination of the relationship between these two variables, thereby providing a better indication of the type of relationship as well as determining how strong that relationship is. In addition, the results would aid a quantitative evaluation of the association between these variables, thus ensuring that the study addressed the research question.

4.7.2. Research Question 2: To what extent does DT affect IT capability in Zimbabwean commercial banks?

This question was linked to the hypothesis “DT has a positive influence on IT capability for Zimbabwean commercial banks”, and had DT as the independent variable while IT capability was the dependent variable. To provide answers to this question, the current study applied both descriptive statistical analysis and SEM to establish the nature of the association between the variables DT and IT capability in Zimbabwean commercial banks. These results were expected to provide insights into the nature of the relationship between the variables stated above, as well as provide a quantitative evaluation of the same relationship, which would ensure that the study question was addressed.

4.7.3. Research Question 3: What is the effect of DT on the productivity of the employees of commercial banks in Zimbabwe?

To address this question, it was converted into the hypothesis “The effects of DT on the performance of the employees of commercial banks in Zimbabwe are positive and significant”. Consequently, descriptive statistical analysis and Structural Equation Modelling (SEM) were conducted to probe the interconnection between DT and the performance of the employees of commercial banks in Zimbabwe. DT was considered the explanatory variable, while employee

productivity was the explained variable. The results were expected to provide a quantitative measure of the link between DT and employee productivity, thereby providing answers to the research question.

4.7.4. Research Question 4: What is the effect of DT on the level of IT innovation by Zimbabwean commercial banks?

To address this research question, it was first linked to the following hypothesis: “The impact of DT on the IT innovation by Zimbabwean commercial banks is positive and significant”. By conducting SEM and using descriptive statistical analysis, this study examined the bond between the variables DT (predictor variable) and IT innovation (response variable). This analysis was selected because it allowed for the examination of the said relationship, and the obtained results would provide insights into the nature and strength of the said relationship. In addition, a quantitative evaluation of this relationship would be illuminated, thereby ensuring that the study question is answered.

4.7.5. Research Question 5: What is the relationship between the level of IT innovation and the performance of Zimbabwean commercial banks?

Descriptive statistical analysis, as well as SEM, was used to address this question. To effectively respond to the question, the following hypothesis was developed: “The influence of IT innovation on the performance of Zimbabwean commercial banks is positive and significant”. The reason for using this approach was that it would allow the study to examine this relationship in detail. This question had IT innovation as the independent variable, while commercial bank performance was the dependent variable. Further, the obtained results would provide important information on the characteristics of the said relationship as well as provide a quantitative assessment of the same, thereby ensuring that this study question was answered.

4.7.6. Research Question 6: To what extent does IT capability affect the performance of Zimbabwean commercial banks?

To address this research question, it was essential to convert it into the following hypothesis: “The effects of IT capability on the performance of Zimbabwean commercial banks are positive and significant”. The current study applied SEM and descriptive statistical analysis to obtain a deeper insight into the link between IT capability (input variable) and the performance of commercial bank employees in Zimbabwe (output variable). The analysis was selected because it allowed the inquiry to assess the bond between the given constructs, thus providing more details as well as measuring the strength of the identified relationship. In addition, it would enhance the evaluation of the quantitative association between these two variables, thereby ensuring that the study has answered the research question.

4.7.7. Research Question 7: What is the effect of employee productivity on commercial bank performance in Zimbabwe?

This question was addressed by linking it to the following hypothesis. “Employee productivity positively affects commercial bank performance in Zimbabwe”. Consequently, this study applied SEM as well as descriptive statistical analysis to investigate and establish the interconnection between the causal variable of employee productivity and the response variable of commercial bank performance. This analysis was chosen because it allowed the researcher to investigate the relationship between these variables so as to offer more information regarding the nature and strength of the association. This analysis was expected to illuminate quantitatively the relationship between the variables specified above, thereby ensuring that the study question was answered.

4.7.8. Research Question 8: To what extent does IT capability mediate the relationship between DT and commercial bank performance in Zimbabwe?

The above research question was addressed by first developing it into the following hypothesis. “The mediating impact of IT capability on the relationship between DT and commercial bank performance in Zimbabwe is positive”. As a result, it used SEM and descriptive statistical analysis to probe whether IT capability mediates the connection between DT and commercial bank performance. The analysis was selected because it allows the researcher to examine the mediation of IT capability on the association between DT and commercial bank performance, thereby providing more insights into the nature and strength of the mediation of IT capability on the said relationship. Furthermore, a quantitative determine the extent of the mediation role of IT capability was provided, thereby confirming that the study question was answered.

4.8. Chapter Summary

This chapter presents the results obtained from undertaking the study. This was done in a systematic manner wherein the chapter first restated the study purpose. The study sought to investigate the impact of DT on commercial bank performance by considering the mediation role of IT capability. This was done by considering the perceptions of commercial bank employees. It was seen that the study was necessitated by the conflicting literature positions where some studies returned a positive association (Sia et al., 2021; Zuo et al., 2021) while others returned a negative association (Reis & Melao, 2023; Tran et al., 2023). In addition, the study was seen as important given that there seem to be few studies focusing on Zimbabwean commercial banks, with the few studies having focused on other areas and the paucity of studies that considered the mediating impact of IT capability (Cappa et al., 2020; Goldfarb & Tucker, 2019; Hakizimana et al., 2023;

Hokonya, 2024; Masinire et al., 2023). Furthermore, most studies in the domain focused on other geographical jurisdictions, while some applied different methodologies to the survey paradigm used in this study (Goldfarb & Tucker, 2019; Xie & Wang, 2023).

The results were achieved through the deployment of an online survey of the 13 commercial banks in Zimbabwe. This method was chosen due to its capacity to collect large quantities of data (Osei et al., 2023; Roh et al., 2021), given that it sought to have 364 respondents. The data thus collected were analysed using SPSS. The analysis included demographic analysis, descriptive statistics analysis, as well as inferential statistical analysis. The generated results were presented and evaluated in light of the study's theories and the extant literature.

The chapter discussed the trustworthiness of the data that was used in compiling the results. The underlying concepts of credibility, transferability, dependability and confirmability (Babatunde, 2024; Condon et al., 2022; Kyngäs et al., 2020) were seen as key in the study. This study achieved the data trustworthiness principle of credibility by using more than one bank, thereby achieving data triangulation (Kyngäs et al., 2020). Further peer debriefing was implemented, whereby the study tool was made available to three PhD holders who suggested some changes (Creswell & Poth, 2018). In order to achieve reliability, the study implemented scales from reliable and valid studies (Babatunde, 2024; Sürücü & Maslakcı, 2020). Further, the use of the SEM tool assisted, as it has been seen to have the capacity to handle multiple relationships. The credibility of the data was also enhanced by carrying out data cleaning (Pilowsky et al., 2024).

To achieve transferability, the study ensured this by subjecting the data to statistical analysis, using a clear and detailed methodology as well as using a stratified random sampling method to collect the data (Babatunde, 2024; Kyngäs et al., 2020; Spake et al., 2022).

Dependability was discussed, and this was attained by using standardised procedures as well as a pilot survey (Kimathi et al, 2024; Nguyen-Viet & Nguyen, 2023). This chapter also considered data confirmability, and this was achieved through the use of SPSS and the application of a clear methodology (Chung et al. 2020; Alrawashedh & Shubita, 2024).

The reliability and validity of the data were discussed in this chapter. In general, the use of measurement scales adapted from prior valid and reliable studies assisted in achieving this (Lamm, 2020). Specifically, indicator reliability was measured using factor loadings, and these exceeded 0.5, indicating compliance with indicator reliability (Tavakol & Wetzel, 2020). The chapter showed that internal consistency was achieved, and this was measured using Cronbach's Alpha (Nawi et al, 2020) as well as Composite Reliability (CR) (Hair et al., 2021). The values complied with the minimum set levels, thus showing that the study achieved internal consistency reliability. In addition, the study measured convergent reliability using the Average Variance Extracted (Osei et al., 2023), and again, the scores were all in compliance with the standard minimum of 0.5 (Zhu & Jin, 2023).

This chapter also discussed and presented results associated with validity measurements. Internal validity was achieved by applying the random sampling method, while external validity was achieved by applying a quantitative study design (Webster-Clark et al., 2024). Convergent validity was assessed in this study using the CFA (Moher et al., 2020). All the study variables achieved the minimum thresholds of the AVE and Composite Reliability, thus confirming convergent validity (Bagozzi, 1986; Hair et al., 2021).

Discriminant validity was also measured and presented in this chapter, and it was considered using the square root of the AVE for each variable, which must exceed the variable's highest correlation with any of the other variables in the study. The tests showed that all the

variables complied with this requirement; thus, it was concluded that the study achieved discriminant validity.

This chapter presented the study results in a systematic way. Firstly, the demographic data was presented. This touched on respondents' gender, which showed that the bulk of respondents were male, their age (with the bulk between 18 and 34 years of age), and level of education, which showed that the majority had at least an undergraduate degree. Concerning employment duration, the results showed that the majority of respondents had worked for more than 6 years. The results also revealed that the bulk of the respondents were permanent workers, while the majority were in middle management.

The chapter also presented the study's descriptive statistics on the measured variables. The descriptive statistics show that the respondents supported that all the latent variables had a positive influence. That as it may, the presentation of objective performance data (in the form of ROA) gleaned from the commercial banks' published financial statements was used to validate the perceptual results obtained from the survey.

In order to test whether the data was suitable for factor analysis, the study applied the Kaiser–Meyer–Olkin (KMO) and Bartlett's Test of Sphericity to assess the suitability of the data for factor analysis. The data turned out to be suitable, given that the KMO factor turned out to be above 0.5 (Hair et al., 2021).

This chapter presented the results of hypothesis testing carried out on the eight study hypotheses. The hypothesis testing was done using Structural Equation Modelling (SEM) (Shehadeh et al., 2023; Thuy, 2020). Using SEM, it was established that all the hypotheses had positive betas and p-values equal to 0.000, indicating that the hypothesised relationships were positive and significant. It was revealed through SEM that the relationship between DT and

employee productivity, DT and IT capability, DT and IT innovation, IT innovation and commercial bank performance, IT capability and commercial bank performance, employee productivity and commercial bank performance, the mediation of IT capability on the relationship between Dt and commercial bank performance as well as the relationship between DT and commercial bank performance all were positive and Significant.

The demographic data presented were evaluated in this chapter. The response rate was observed to be 85.9% against a minimum acceptable rate of 60% (Abdulaziz, 2024; Beehr et al., 2022). Most respondents were millennials, in line with studies in the commercial banking sector (Hannant, 2019). The evaluation of educational data revealed that the majority of the respondents had at least an undergraduate degree, and this was consistent with studies in the banking sector, which consider educational qualifications as important (Pilatin, 2023). The results showed that most of the respondents were permanent workers, which is inconsistent with study results that have discovered that banks largely employ contract workers to manage costs (Kalejaiye, 2019). The evaluation of hierarchical positions was done, and it was shown that the majority of respondents were lower-level managers, which is consistent with commercial bank structures that seek to avoid top-heavy structures (Wagener, 2023).

This chapter evaluated the results from the descriptive statistics that were presented. The evaluation revealed that all the study variables had means consistently above the 2.5 midpoint, indicating that the respondents largely agreed with the hypothesised relationships. This was in line with both the TAM and dynamic capability theories (İslatince, 2023; Vuković et al., 2019). Prior studies lined up with the evaluation of these descriptive results (Bakri et al., 2024; Khan et al., 2022; Li et al., 2023; Vial, 2019).

The hypothesis testing results were also evaluated in this chapter. Regarding the alternative hypothesis, one result, the TAM model, was seen to support the results (Vuković et al., 2019). It was established that while the bulk of empirical studies support the results (Shwedeh et al., 2020; Khadragy et al., 2022; Ridwan et al., 2020; Adewumi et al., 2024), a few others did not support the study results (Kadur & Rajshekar, 2022). The evaluation of the null hypothesis two testing results was supported by the dynamic capabilities theory (Nousopoulou et al., 2022; Vial, 2019). The results were also resonating with prior valid studies (Barba-Sánchez et al., 2024; Madanayake & Yapa, 2024).

An evaluation of the results emanating from testing the null hypothesis three showed that it was also supported by the dynamic capabilities theory (Cheng et al., 2023; Marx et al., 2021). The results also found support from empirical evidence (Zhao et al., 2024). This chapter discussed the evaluation of results from testing the null hypothesis four. The results had overwhelming evidence from prior studies agreeing with them (Chen et al., 2024; Thuy, 2020; Zhu & Jin, 2023).

The dynamic capability theory supported the results presented by testing the null hypothesis five (Nousopoulou et al., 2022; Vial, 2019). That as it may, some literature did not support the results, as it was argued that IT capability alone does not result in improved performance (Saira & Farhan, 2022). However, more empirical studies seemed to support the study results as they argued that indeed IT capability results in improved performance (Audy et al., 2023; Hamida, 2018; Rostika, 2023; Tian et al., 2023; Yaaqub et al., 2023). The evaluation of results from testing the null hypothesis six was done in this chapter. This evaluation revealed that both the dynamic capabilities and the TAM supported the outcome of the tests (Audy et al., 2023; İslatince, 2023). The test results found overwhelming support from prior studies (Jahan et al., 2020; Jena, 2022; Perumal & Aithal, 2023; Rahaman et al., 2023).

The evaluation of test results from the null hypothesis seven revealed that the results were supported by the Digital Orchestra Framework (DOF) (Khin & Ho, 2019; Li et al., 2023). Several valid studies supported these results as expected (Adam et al., 2021; Castillo-Vergara, 2021). The chapter also evaluated test results from alternative hypothesis eight. These results were also supported by the dynamic capabilities theory (Ghosh et al., 2022). Prior studies were not in consensus. While most of the studies supported the test results (Brown & Grant, 2020; Cappa et al., 2020; Goldfarb & Tucker, 2019; Huang, 2021; Soesilo & Tampubolon, 2023; Xie & Wang, 2023), a few others did not support the test results (Kadur & Rajshekar, 2022; Shanti et al., 2023).

Having presented the results and the attendant analysis, the next chapter presents the implications, recommendations and conclusion of the research results.

CHAPTER 5: IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSIONS

5.1. Chapter Overview

This study investigated the association between digital transformation and the performance of commercial banks in Zimbabwe, considering the mediating role of IT capability on this relationship. To effectively set out the study implications, recommendations and conclusions, this section begins with a brief review of the study problem and purpose statements. This will assist readers in remembering the goals and objectives that the current study sought to fulfil, as well as in linking study results with study aims (Kaur, 2019; Yam & Sharma, 2022).

The problem of this study was framed by inconsistent results in the literature, a geographical concentration of studies in developed and Asian economies, concentrated methodological approaches, and the paucity of context-specific quantitative studies in Zimbabwe. Notably, prior studies have brought in mixed results insofar as the effects of DT on the performance of commercial banks are concerned; further, the influence of IT capability on this relationship is not clear (Kadur & Rajshekar, 2022; Nguyen-Viet & Nguyen, 2023; Reis & Melao, 2023; Sia et al., 2021). Indeed, some studies have implied a positive association between DT and commercial bank performance, while some have found that the association is not necessarily positive.

The need for commercial banks to improve their performance in the case of Zimbabwe has been heightened by the advent of Mobile Network Operators and Fintechs (Kaondera et al., 2023) that have resulted in banks losing market share, hence negatively impacting their performance. While several studies considered the impact of DT on performance (Cappa et al.,

2020; Goldfarb & Tucker, 2019; Xie & Wang, 2023), it appears there has not been much consideration of how IT capability improves or negatively affects this relationship.

Furthermore, most studies were done outside Zimbabwe, while those done in Zimbabwe considered DT in contexts that circumvented commercial banks (Chinakidzwa, 2020; Chindudzi et al., 2020; Hokonya, 2024; Mazikana, 2023). A glance at the literature showed that a considerable number of studies were done applying the qualitative methodological approach, case studies, and those that applied the quantitative paradigm did so using secondary data (Hakizimana et al., 2023; Masinire et al., 2023). This implied the need for further studies in the Zimbabwean context, applying the quantitative study approach and incorporating the mediating role of IT capability.

The purpose of this study was to examine how DT influences the performance of Zimbabwean commercial banks, considering the mediating role played by IT capability. This entailed the use of a survey undergirded by an explanatory design and applied the Technology Acceptance Model (TAM), the Dynamic Capabilities Theory (DCT) and the Digital Orchestra Framework (DOF). The main study variables included DT, IT capability, IT innovation and commercial bank performance.

Whilst several research approaches exist (Creswell & Creswell, 2023; Sharma, 2023; Thomas, 2021), this study adopted a quantitative research approach. This was supported by a positivist research philosophy. The study examined the existence of relationships between several variables as well as the impact of IT capability on the association between DT and commercial bank performance. This was done by considering the views of commercial bank employees from all 13 commercial banks in Zimbabwe. Several authors have supported the use of a quantitative approach where study results are intended to be generalised as well as where statistical methods

are used to assess relationships between variables, which was in line with the current study (Iluba & Phiri, 2021; Turuev & Shashkina, 2023).

Data was collected by applying a survey design. This was in line with valid studies in a similar field (Íslatince, 2023; Rios-Lama & Vargas-Merino, 2023). The unit of analysis in this research was the commercial banks, while the unit of observation was the commercial bank employees. Furthermore, the population of interest consisted of all financial institutions in Zimbabwe. Consequently, the target population was the total employees of the 19 banks in Zimbabwe, while the sampling frame considered only the commercial bank employees. At the time of the study, these numbered 6,322 (RBZ, 2023). Consistent with previous valid research (Kaondera et al., 2023; Murwira et al., 2019), the current research allowed all 13 commercial banks to participate in the survey, obviating the need for any sampling techniques on the participating banks.

This study followed specific steps that led to data collection (Surucu & Maslakci, 2020). The initial step involved defining the study design and developing the study protocol. This relates to the development of study objectives, questions and hypotheses. The second step involved the completion and submission of relevant forms relating to the approval of the study. Such forms included the gatekeeper forms and seeking the approval of the UREC to proceed with data collection. Having approved, the next step involved recruiting gatekeepers who provided consent for the researcher to collect data from the respective bank employees. The following step involved the recruitment of those participating in the study, while the next step involved data collection.

To collect data from these employees, the study deployed an online structured questionnaire as the study instrument. The structured questionnaire was used in a pilot study that involved 28 participants, which resulted in the refining of the study instrument. The final

questionnaire contained 33 questions, with 8 questions covering the demographics section. The rest of the questions considered the study variables, and they were arranged to address specific study objectives. These were closed-ended questions utilising a 5-point Likert scale (with scales, 1,2,3,4, and 5 representing Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree, respectively) as applied in several studies (He et al., 2021; Joensuu-Salo & Matalamäki, 2023; Yu et al., 2022).

The total number of survey participants was 310 commercial bank employees. These were determined using the stratified random sampling method as emphasised by Khan (2020) in studies that seek to maximise representativeness. Indeed, similar studies carried out in the recent past applied similar techniques in similar fields (Shehadeh et al., 2023; Theiri & Hadousa, 2024; Uribe-Linares et al., 2023). Pertaining to the sample size, this study applied Krejcie & Morgan's (1970) table, and this was triangulated with the A Priori Power analysis using the G*Power 3.1.9.7 software. While Krejcie & Morgan's table indicated a sample size of 364 participants, given a population size of 5,606 employees, the G*Power analysis indicated a minimum sample size of 92 participants.

To complement the primary data, as well as provide an objective benchmark for the perceptual performance measures, secondary data on Return on Assets (ROA) for the 13 commercial banks was also systematically collected and analysed (Appendix I). This triangulation of data sources was done so as to achieve the validity and robustness of the study results.

To this end, this study applied such statistical methods as descriptive statistics and inferential statistics. Charts and tables were used to describe demographic data, while advanced statistical methods such as SEM and CFA were applied to draw conclusions on the hypothesised

relationships. The data was analysed using SPSS. At every stage of the methodology, the researcher upheld research ethics.

Firstly, the researcher conformed to Unicaf's code of ethics by obtaining approval from the UREC. Furthermore, the researcher recognised and implemented various ethical standards. Firstly, the researcher ensured informed consent (Jotwani et al., 2024; Mannelli, 2022) from the respondents by illuminating what the study entails and getting them to freely participate in the study. Confidentiality was assured as the respondents' information, as well as bank-specific responses, were collected using secure communication protocols such as Google Forms. Anonymity was also upheld in the study by avoiding linking individual results with institutions as well as avoiding mentioning particular banks in the results (Moses, 2021). In addition, the study ensured that the study participants were not exposed to harm, be it physical or emotional. The study did not include any vulnerable respondents, such as the disabled or minors. The investigator's interaction with study participants was negligible to avoid compromising the integrity of the research (Zyphur & Pierides, 2019). In addition, the researcher took a neutral stance to deal with personal biases and applied rigorous study methods (McKenna et al., 2020).

This section contains three sections, and these are the introduction, study implications and conclusion. The introduction above gave a review of the problem statement, the purpose statement and the study methodology. It further considered the ethical dimensions that were adopted in the current study. The study implications section will consider not only practical implications but will also delve into theoretical and social implications of the study to the various stakeholders encompassing employees, academics, policymakers and regulators. The conclusion will chronicle the researcher's deductions from the study results and summarise the chapter. In essence, this

chapter synthesises the study's conclusions, derives recommendations anchored in the statistical evidence, and suggests specific avenues for future research.

5.2. Implications of the Study

This section considers how the current study results impact the real world, influence future research and give direction to the formation and implementation of policies (Markowitz, 2019). Furthermore, these assist in fusing the research's contribution to the existing body of knowledge by highlighting both practical and theoretical implications, thereby ensuring that the significance of the study is made clear to various interested parties (Presti, 2021). Consequently, the subsequent section provides the practical and theoretical implications of the current study's results.

5.2.1. Practical Implications of the Results

Through this inquiry, numerous real-world inferences were observed. This culminated in the practical implications or contributions of this inquiry. It must be observed that these practical contributions are expected to help commercial bank shareholders, managers, employees, policymakers and academics to understand the subject matter better and come up with well-informed decisions in their sphere of influence. This section summarises the practical contributions of this research.

Firstly, this study observed that DT is a strategic lever for performance, given the statistically significant relationship observed between DT and commercial bank performance. These results confirm that DT is a viable strategic investment for improving the performance of commercial banks. As observed in the literature (Kaondera et al. 2023), commercial banks have been losing market share to MNOs and Fintechs; thus, these results validate the allocation of resources by managers toward DT initiatives so as to improve commercial bank performance. This study will help commercial bank managers in understanding the need to invest in and implement

DT successfully. Contrary to some literature, which showed that DT negatively impacted employee productivity (Bausch et al., 2024; Reis & Melao, 2023; Tran et al., 2023), the study results give confidence to bank managers when coming up with DT investment decisions.

Secondly, the study results revealed that employee productivity is the key performance driver for commercial banks in Zimbabwe. EP came out as the strongest direct path for CBP, underscoring the importance of human capital in DT initiatives. It can thus be seen that the success of DT in improving performance for commercial banks is heavily dependent on enhancing human capital. Banks must therefore prioritise training and incentive structures to achieve technological upgrades. Commercial bank employees need to be fully engaged in their bank's DT initiatives. It has been shown that these initiatives have a positive influence on their performance. In addition, commercial bank management needs to include DT KPIs, which will be regularly reviewed to track how DT affects both employee output and that of commercial banks.

Third, DT was seen to have a positive effect on IT capability. These results will assist commercial bank managers in embracing DT. Shareholders will also be much more informed when they need to make investment decisions in these organisations. These results are also important to policymakers who can craft and implement policies that will support the DT initiatives of commercial banks. In particular, the Reserve Bank of Zimbabwe is interested in the sustainability of the performance of commercial banks in Zimbabwe; thus, the results of this study are quite informative to them.

Fourthly, the outcome of this study illuminated that DT strongly foster IT innovation. That as it may, IT innovation has a weak direct link to CBP. This suggests that for Zimbabwean banks, the primary value of innovation may lie in its role as an intermediary that supports other performance drivers rather than as a direct driver. This is critical in ensuring that commercial banks

not only benefit from their DT initiatives but also positively influence the performance of these banks. Because IT innovation was seen to positively affect the performance of commercial banks in Zimbabwe, the practical contribution of this study was that commercial bank executives were advised to instil a culture of innovation. Several empirical studies (Jihane & Aziz, 2022; Verhoef et al., 2021) indicate that an innovation culture is essential if commercial banks are to realise the benefits of IT innovation on commercial bank performance.

Fifth, the study results established that IT capability is a critical mediator, given the statistically significant positive beta obtained from the test. The significant mediating role of IT capability revealed that the relationship between DT and CBP is effectively improved by the IT capability of commercial banks in Zimbabwe. Commercial banks need to invest in infrastructure, skills and strategic alignment. Furthermore, commercial banks' investments in DT must be matched by parallel investments in upgrading their core IT capabilities.

This study met the practical significance of the study by highlighting the need for commercial bank management to implement and enforce collaboration and knowledge sharing between the bank's IT department and other employees. Furthermore, commercial bank employees need to keep learning and experimenting with recent technologies. The results indicated that the majority of respondents possessed at least an undergraduate degree; thus, commercial bank management needs to take advantage of the high levels of education to fund the training of employees on digital and technology courses as opposed to academic courses. As Latinovic and Chatterjee (2022) illuminate, continuous training assists the innovative capacity of employees.

Furthermore, practical contributions were achieved by highlighting the need for commercial banks to ensure that all employees participate in DT journeys. The study results showed that IT capability not only results in improving the performance of commercial bank

employees in Zimbabwe but also positively mediates the link between DT and the performance of commercial banks in Zimbabwe. This showed that commercial bank management needs to allocate resources to fund the advancement of their IT capability and sync their IT investment with the bank's competencies by developing a DT roadmap. In addition, the practical contribution to regulators has been that the study showed that they need to develop guidelines for IT capability that ensure that all banks, regardless of size and type, benefit from building their IT capacity. This may include giving tax breaks on IT equipment.

5.2.2. Theoretical Implications of the Results

This study synthesised the DT literature in the context of its impact on performance as well as how IT capability impacts the interplay between these study variables. The study results were used to infer some theoretical implications. The following paragraphs present various key contributions to the existing literature resulting from this study, thereby improving the body of knowledge.

The first theoretical contribution of this study was the contextual validation of theories. This is so because the research successfully applied and validated the Technology Acceptance Model (TAM), the Dynamic Capabilities Theory (DCT) and the Digital Orchestra Framework (DOF) in the under-researched context of Zimbabwe's banking sector. The strong link between DT and EP supports TAM's relevance, while the mediation results reinforce DOF's emphasis on orchestration via IT capability. These theories supported the study's conceptual framework and were all in line with the study results. This showed that these theories can also be applied in similar contexts, given that the results were obtained using a quantitative approach that allows generalisation of results.

Secondly, this research helped clarify conflicting literature. One of the gaps exposed in this study is that there are conflicting results on the impact of DT on the performance of commercial banks (Bausch et al., 2024; Reis & Melao, 2023; Sia et al., 2021; Zuo et al., 2021). By quantifying relationships in the Zimbabwean context, this study helped reconcile conflicting prior findings. For instance, it confirmed a positive link between DT and CBP as well as the positive mediation of IT capability on this relationship, supporting one stream of literature while challenging studies that had contrary findings, specifically with negative and insignificant effects.

In addition, this study addressed contextual gaps observed in the literature. The discussion in the literature review revealed that most studies that have been carried out on the impact of DT on the performance of commercial banks have been done in Asia, Europe and the USA, with a few being carried out in Africa and Zimbabwe in particular (Cappa et al., 2020; Kaondera et al., 2023; Wewege et al., 2020). The question arising from this was whether these results would apply to the Zimbabwean context. The results from this study have thus helped shape theory by showing that not only does DT positively impact commercial bank performance in the Zimbabwean context, but also that DT is positively associated with employee productivity, IT capability, and IT innovation. Furthermore, the study results revealed that these variables are all positively linked with commercial bank performance, thus helping to understand the strength of these relationships in the Zimbabwean context.

This study considered the impact of IT capability on the relationship between DT and commercial bank performance, an area that is characterised by little empirical research. It can therefore be concluded that the study results that IT capability positively impacts the relationship between DT and commercial bank performance in Zimbabwean banks provided a novel contribution to the current body of knowledge.

The implementation of this study resulted in methodological advancement. It was revealed in the literature review that most studies seem to have applied different methodological approaches in studying this subject. Specifically, most studies used qualitative approaches (Hakizimana et al., 2023; Hokonya, 2024; Masinire et al., 2023). The results of this study have been obtained by applying a quantitative approach, thereby enriching the methodological approach as well as assisting in generalising study results.

Furthermore, many studies that examined this study area applied mostly secondary data (Jahan et al., 2020; Jena, 2022; Mathapati, 2021). This study's results were obtained by using primary data. The insights obtained from analysing responses from commercial bank employees provide opportunities for extending existing theories through the application of these theories to new contexts, populations or situations. The use of a quantitative survey-based SEM approach with primary data from multiple banks addresses a gap identified in the literature, which was dominated by qualitative case studies or secondary data analyses in other regions.

Overall, this study's results brought some new insights to the body of knowledge by shedding light on the relationship between the various study variables discussed above. The use of the Zimbabwean context assisted in providing knowledge on the extent of the interaction between study variables in a developing African country context. Furthermore, the use of different methodological approaches in this study assisted in buttressing the body of knowledge. Again, using the TAM, DCT, and DOF theories in this study meant that these theories were applied to a new Zimbabwean context, thereby providing new insights and nuances supporting the existing assumptions.

5.2.3. Policy Implications of the Results.

The results of this study provide evidence-based implications for adoption by policymakers. Given that the study results were obtained from the perspectives of commercial bank employees, it will be important for bank management to lobby policymakers to consider this study's outcomes. This will result in the improvement of policy outcomes through the effective interventions born out of the results of this study.

From the perspective of commercial bank employees, DT positively improves commercial bank performance, and IT capability positively influences the interlink between these two variables. These results indicate that commercial bank management through their associations, like the Bankers Association of Zimbabwe (BAZ) need to urge policymakers, such as the central government and the country's central bank, to constantly review their policies to ensure they assist banks in attaining their DT objectives. For example, a reduction in technology-related import taxes for commercial banks. It was revealed in the literature that the Zimbabwean environment is characterised by poor internet connectivity and expensive IT infrastructure (Masinire, 2023; Mataruka et al., 2023), which negatively impacts DT journeys. This study's results, therefore, highlight the need for policymakers to implement policies that help banks acquire technology infrastructure in a cost-effective manner so as to improve both the internet and the IT infrastructure for banks.

5.3. Limitations and Effects on Results Interpretation

In any study, certain limitations present themselves, and these need to be considered when interpreting study results. In that regard, this section acknowledges and discusses the observed study limitations, and this is very important for situating the results in their proper context (Ross & Zaidi, 2019). Testor (2020) adds that this will assist in providing guidance to future researchers

as they may highlight areas that require further inquiry, as well as assist in improving future research designs. Furthermore, because the methodological and contextual limitations may affect the interpretation and application of study results by specific constituencies, these will be discussed in direct response to the potential consumers of the study results, which include but are not limited to the academia, bank management, shareholders, regulators and customers.

This study utilised the quantitative approach to arrive at the study's conclusions. The use of a mixed methodology approach could have helped triangulate the results with responses from qualitative data. According to Simuchimba and Mpundu (2024), quantitative data alone may lack the deeper meanings that are required to understand the context existing beyond numbers. The use of quantitative data alone in this study meant that certain human factors could not be captured (Alrawashedh & Shubita, 2024). In addition, as Zhai points out, a quantitative approach alone may provide limited insights into the strategic issues associated with digital transformation and commercial bank performance.

For bank management and shareholders, although the results demonstrated a statistically significant relationship between DT, IT capability and Performance, they do not provide the rich and detailed explanations accompanying the numbers. For instance, how and the reasons why such strong correlations exist, what human factors, strategic decisions, as well as operational issues were not captured. In that regard, bank managers reading these study results need to understand that while they provide reliable information, they lack qualitative depth.

Regulators require objective and verifiable results to inform policy. Given that these study results are grounded in employee perceptions, regulators need to use them, knowing that they must be considered alongside the broader macroeconomic data for definitive policy conclusions.

While this study adopted a mixed-sources approach in measuring commercial bank performance by combining perceptual data from an employee survey with objective secondary data on ROA (thereby significantly strengthening the validity of the performance construct by mitigating common method bias), a limitation still remained. The study's independent variables, such as DT, IT Capability, Employee productivity and IT Innovation, were measured solely through primary data. While it is acceptable that the employees provide valuable and important insights, using their views alone may present an incomplete picture of the wider impact on the commercial bank and other stakeholders. According to Kamyale and Mpundu (2024), employee perspectives may be influenced by their roles in the organisation. In addition, the use of surveys may fail to give granular details regarding financial outcomes, which are provided by secondary data (Ali et al., 2024).

The singular focus above may present an incomplete picture, thereby affecting how different audiences interpret the results. For bank management, employee views are critical for understanding internal processes and operational improvements. That as it may, management using these results needs to understand that they lack the voice of the customer, meaning that DT initiatives that may be interpreted by employees as successful may be perceived differently by customers. In that regard, while these results offer a strong internal perspective, they should be complemented by customer experience data for a holistic picture. While employee views are useful, regulators are interested in the perspectives of other stakeholders, such as customers, so as to assess the impact on inclusion and fair access.

The inquiry did not consider some contextual factors, such as market conditions, bank size and the type of bank when examining the impact of DT on commercial bank performance while considering the mediation of IT capability. According to Li (2024), the size of the bank matters

when studying the impact of DT on commercial bank performance. This is because DT's impact on performance is thought to be heterogeneous (Xiang & Jiang, 2023). The results could have been different if the study had considered other contextual factors. According to Chen et al. (2024), contextual factors need to be considered to get a more accurate assessment of DT on commercial bank performance. While these views hold water, the Zimbabwean banking environment is made up of banks that are not that different from each other in terms of size, as measured by capital. This is because the capital levels are regulated in the Zimbabwean banking sector, and all banks must attain a certain minimum capital level (Reserve Bank of Zimbabwe, 2024).

That the study did not explicitly account for such contextual factors as bank size and prevailing market conditions has a bearing on the interpretation of the study results. Commercial bank managers from smaller banks may need to be cautious, as the results may be driven more by the experiences of bigger banks that have more resources for DT. The study results may thus not perfectly predict outcomes from smaller banks that have different risk profiles. In that regard, management may interpret the results as a general trend across a regulated sector and not a prediction for a single institution.

Overall, the above limitations mean that the study provides valid and reliable results, and they provide a snapshot of the influence of DT on the performance of Zimbabwean commercial banks, considering the mediation of IT capability through the lens of commercial bank employees. These results provide a robust foundational platform, but they need to be interpreted by bank management, shareholders, regulators and customers as part of a bigger puzzle that must be complemented by other sources of data and stakeholder perspectives for completion.

5.4. Recommendations for Application

Informed directly by the empirical results of this study, this section presents research-based recommendations for key stakeholders, including policymakers, commercial bank management, and commercial bank employees. As argued by Muhammad et al. (2020), recommendations for application enhance the practical utility of research by translating empirical evidence into actionable guidance. Consistent with Harris et al. (2019), the recommendations presented here are explicitly grounded in the study's statistical results rather than general managerial opinion. As a result, the following section provides recommendations that are explicitly derived from the statistical results analysis presented in the previous chapter.

5.4.1. Recommendations for Commercial Bank Management

This study recommends that commercial bank management must strengthen DT initiatives to improve employee productivity. This recommendation is grounded in the study's finding that digital transformation has a statistically significant positive effect on employee productivity. The SEM results demonstrate that employees operating in digitally enabled environments exhibit higher productivity and task efficiency. Based on this evidence, commercial banks are recommended to prioritise and deepen digital transformation initiatives across operational, customer service, and internal workflow processes. Empirical support from this study aligns with prior research showing that digital tools reduce task completion time and enhance operational efficiency as they take less time to implement and complete tasks (Adewumi et al., 2024; Bag, 2021; Chatterjee, 2022; Khadragy et al., 2022; Kitsiosis et al., 2021; Ridwan et al., 2020). Human capital development must therefore not be seen merely as support but as a strategic priority.

Secondly, this study recommends that commercial bank management invest strategically in foundational IT capability. This is informed by empirical study results that revealed a

statistically significant mediating role of IT capability on the interaction between DT and CBP. This suggests that commercial bank management in Zimbabwe needs to ensure that DT projects are underpinned by strategic investments in modern IT infrastructure, data management systems and in-house IT talent. IT capability has been seen to be a key driver of the performance of banks, as well as the relationship between DT and commercial bank performance. According to Zhu and Jin (2023), DT has been seen to push commercial banks to improve their IT infrastructure as well as improve the human resources side of IT capability.

Backed by this study's empirical results, which showed that DT influences CBP both directly and via the mediation of IT capability, it is recommended that commercial bank management should invest in and develop integrated DT roadmaps with clear KPIs. This can be achieved through creating detailed roadmaps that track not just financial KPIs but also intermediate metrics like employee digital skill levels, IT system reliability and innovation output rates.

The positive and significant association between DT and CBP is quite telling for Zimbabwean commercial banks, whose market share has been dwindling (Kaondera et al., 2023) owing to the entry into the banking space by MNOs that rely on digital means to reach customers. Embracing DT will allow banks to reach more customers, make work more efficient for employees and allow commercial banks to push for new business. Study results showed that most employees agreed that they were using new technologies brought about by DT, and that their commercial bank was using DT metrics to have a better understanding of its customers. This means that commercial banks need to invest in DT initiatives so as to benefit from their impact on the performance of their commercial banks.

In addition, this study recommends that commercial bank management in Zimbabwe needs to foster a culture of controlled innovation as well as redirect budgets toward digital and

innovation-focused skills. The study results concluded a strong DT-IT Innovation link with the highest beta value. This suggests that banks should create environments that encourage experimentation. That as it may, the study results showed that on its own, IT innovation's direct impact on CBP was somewhat weak. This suggests that commercial bank management needs to align business objectives with IT innovation to avoid wasteful innovations.

Descriptive results revealed that the majority of respondents were highly educated, predominantly within the millennial age group, and actively engaged in digital work environments. Combined with the significant relationship between digital transformation and employee productivity, this finding indicates that traditional academic training yields diminishing marginal returns. Accordingly, commercial banks are advised to shift employee development programmes toward digital transformation, data analytics, fintech platforms, and innovation-oriented skills. This recommendation is empirically justified by the study's evidence that digitally skilled employees perform better in transformed banking environments.

Given the significant effects of IT innovation and employee productivity on bank performance, commercial bank management is therefore encouraged to foster a culture that supports experimentation, continuous learning, and cross-functional collaboration, particularly between IT and non-IT departments. This recommendation is evidence-based, as innovation and performance improvements were empirically linked to digitally enabled and collaborative environments. As revealed in the literature review, this enhances the agility of the bank (Jihane & Aziz, 2022; Verhoef et al., 2021), which is a key component if the bank's IT innovations are to present improvements in their competitive ability.

In addition, the reviewed literature highlighted culture as critical in the context of DT and IT innovation (Modiba et al., 2020; Nguyen, 2020; Tuukkanen et al., 2022; Verhoef et al., 2021).

This study, therefore, recommends that commercial bank management must foster a culture that encourages innovation. One way of achieving this, as has been revealed in Chapter 2, is to allow employees continuous learning, experimentation and innovation (Latinovic & Chatterjee, 2022).

Since the study demonstrated that digital transformation improves employee productivity and that employee productivity positively affects commercial bank performance, the outcomes of digital transformation should be measurable at the individual level.

Accordingly, commercial banks are advised to incorporate digital transformation key performance indicators (KPIs) into employee productivity management systems. This ensures alignment between organisational digital objectives and individual accountability. Results from the descriptive data revealed that most employees confirmed that they fully participated in the DT of the bank. Similarly, most of the respondents agreed that the use of ICTs in their bank helps them accomplish tasks faster. It is when employees are fully engaged, understand DT, and fully participate in the commercial bank's DT initiatives that commercial bank employee productivity is improved by DT.

The study results highlighted the positive and significant effect of DT on the performance of commercial banks in Zimbabwe. In addition, the study results revealed that the majority of respondents from Zimbabwean commercial banks participate in the DT initiatives of the bank, enhancing their motivation and allowing them to accomplish their tasks faster. Consequently, commercial bank managers are strongly advised to prioritise investing in digital infrastructure, including AI, Cloud Computing, and Big Data Analytics. This is because these were seen to positively influence employee productivity, which in turn helps commercial banks to improve their performance. The need to invest in digital infrastructure is supported by the literature review, which revealed that most traditional banks in Zimbabwe have outdated IT infrastructure

(Gkrimpizi & Peristeras, 2022). As indicated by the study results, investing in IT infrastructure will result in enhancing the commercial banks' IT capability, thereby positively impacting performance.

The mediating role of IT capability (H7) underscores the need for a structured digital transformation roadmap that prioritises capability development rather than ad hoc digital investments. Commercial bank management is therefore recommended to develop formal DT roadmaps that explicitly align digital initiatives with IT capability building, ensuring coherence, sequencing, and sustainability of transformation efforts. Indeed, results from the survey showed that the bulk of the respondents agreed that their bank's IT helped improve organisational performance in the past three years. According to Jayashree and Jayakani (2023), a DT roadmap allows commercial bank managers to develop a strategic framework that will align IT capabilities with the aims and goals of the commercial bank, thus ensuring coherence. The need for a DT roadmap also finds support in Barba-Sánchez et al. (2024), who conclude that a roadmap assists commercial banks in developing their IT capabilities in a structured way, thereby enhancing their effectiveness in improving the interplay between DT and commercial bank performance.

5.4.2. Recommendations for Policy Makers

The study results provide empirical evidence that can inform regulatory and developmental policy. Specifically, the results show that the IT capability of Zimbabwean commercial banks is a significant mediator in the interaction between DT and CBP. This statistically validated relationship underscores that the national environment for digital infrastructure is not merely a background condition but an important antecedent to bank-level capability.

The role of regulators and policymakers in making it easier for commercial banks to implement DT is critical. Given the study's finding that digital transformation significantly

improves commercial bank performance, policymakers have a vested interest in enabling successful DT adoption. It was revealed in the literature review that central banks in China and Egypt put in place policies that encouraged commercial banks to embrace DT (Hashem, 2020; Xie & Wang, 2023).

Firstly, it is recommended that the Reserve Bank of Zimbabwe put in place a clear and supportive framework to encourage banks to import IT equipment that is critical in the DT journeys of these commercial banks. Evidence in the literature suggests that regulation is a key success factor in supporting DT initiatives (Mawere, 2018). The Reserve Bank of Zimbabwe and relevant authorities are encouraged to implement supportive policies, including tax incentives for IT infrastructure, streamlined import regulations for digital equipment, and sector-wide digital standards. These recommendations are grounded in the study's empirical evidence demonstrating the macroeconomic benefits of improved bank performance.

Given that this study revealed that DT results in improved commercial bank performance, it follows that the government will benefit from a performing commercial banking sector through improved taxes. It is therefore in the best interest of the authorities to capacitate commercial banks by allowing them to import IT infrastructure without levying any taxes. In addition, the literature review showed that the challenging economic landscape in Zimbabwe militates against the successful implementation of DT (Mullan & Rolleston, 2020; Spitzer & Wimmer, 2021). The policymakers are therefore encouraged to enact policies that help commercial banks complete their DT journeys.

Consequently, this study implies that policy interventions aimed at improving the affordability, quality and security of national digital infrastructure (for example, data centres, secure cloud services and broadband) would support a key IT capability component. Furthermore,

the study results reveal that the effect of DT on IT innovation is statistically significant, although the direct link of ITI on CBP is weaker. These findings support the establishment of regulatory sandboxes to manage this dynamic. By providing a controlled environment for testing new DT-based financial products, policymakers can foster innovation cycles driven by DT while concurrently developing essential standards for IT security resilience to achieve enhanced DT securely.

This study recommends that regulators establish and implement guidelines that are supportive of the IT capability development by commercial banks. As has been presented earlier, this study revealed that IT capability positively mediates the relationship between DT and the performance of commercial banks. As such, there is a need for both the Zimbabwean government and the Reserve Bank of Zimbabwe to coordinate policy that ensures that commercial banks leverage IT capability to improve the relationship between their DT initiatives and their performance. This can be done through offering commercial banks tax breaks or subsidies for technology upgrades, which addresses the cost issues associated with DT initiatives (Shanti et al., 2023). In addition, regulators are encouraged to set standards for IT infrastructure, thus ensuring that commercial banks develop digital capabilities that are robust and can improve the performance of the banks. This chimes with Prakasa and Jumani (2024), who argue that regulators are capable of ensuring a level playing field by enacting regulations that ensure that all banks, regardless of size, have access to IT capabilities and leverage these to improve performance.

5.5. Recommendations for Future Research

This research sought to investigate “Digital transformation and performance of commercial banks in Zimbabwe: the mediating role of information technology capability” The study implemented a quantitative research approach that applied a survey design to gather primary data.

This inquiry made use of a structured questionnaire to collect data (and was deployed online) from the respondents who were employees of commercial banks in Zimbabwe. A stratified random sampling method was applied to determine the sample size, and all commercial banks in Zimbabwe participated. The SPSS program was utilised to analyse the collected data. The study used both descriptive and inferential statistics to analyse and present the data. While the study was rigorous and produced valid and reliable results according to the various tests employed, it also identified clear opportunities for future research. Accordingly, this section proposes concrete, methodologically explicit recommendations for future studies.

To the researcher's knowledge, this study was the first one done in Zimbabwe that considered the influence of DT on the performance of Zimbabwean commercial banks while considering the mediation role of IT capability. This study applied a quantitative research approach. Future studies in the Zimbabwean context may consider using different methodological approaches.

First, future research should adopt longitudinal and mixed-method research designs to strengthen causal inference and capture post-digital transformation performance dynamics. A longitudinal design could collect data at multiple time points (for example, baseline, 12 months, and 24 months post-DT implementation) to track how employee productivity, IT capability, IT innovation, and bank performance evolve over time. This could be complemented with qualitative interviews involving digital transformation leaders, IT managers, and frontline employees to explain why and how performance changes occur. Such a mixed-method longitudinal approach would allow stronger validation of the causal pathways identified in this study (Tahir, 2024; Dalei, 2023).

Second, while this study examined IT capability as a mediating variable, future research should test additional mediating mechanisms to deepen the understanding of how DT influences bank performance. Specifically, future studies could model organisational culture (Ghafoori et al., 2023; Morra, 2022; Probojakti, 2024), change management effectiveness, employee digital skills development, and process automation intensity as mediators within a structural equation modelling framework. These variables could be measured using validated scales and tested alongside IT capability to determine whether multiple mechanisms jointly explain DT-driven performance outcomes.

Third, future research should explicitly test moderating variables that define the boundary conditions under which DT affects performance. Concrete moderators include bank size (assets, branch network), bank ownership structure (local vs foreign-owned), bank type (retail vs corporate-focused), economic volatility, and regulatory intensity. Multi-group SEM or interaction-effect modelling could be employed to assess whether DT-performance relationships differ across these categories, thereby providing a more nuanced and context-sensitive understanding of DT outcomes (Martínez-Noya & Garcia-Canal, 2024).

Fourth, future studies should incorporate industry-specific contextual variables that are particularly relevant to the Zimbabwean banking sector. These include regulatory frameworks, competition from fintech firms and mobile network operators, and market structure dynamics. A concrete approach would be to integrate regulatory burden indices, competition-intensity measures, or market-concentration indicators into empirical models assessing DT effectiveness. Such studies would clarify how institutional and competitive pressures shape DT success in emerging economies (Jihane & Aziz, 2022; Verhoef et al., 2021).

Fifth, future research should disaggregate DT into specific technology domains rather than treating it as a single composite construct. For example, studies could examine the independent and combined effects of big data analytics, cloud computing, artificial intelligence, machine learning, and mobile banking platforms on employee productivity, innovation, and organisational outcomes. This would enable researchers to identify which technologies generate the greatest performance gains and under what conditions (Chwila, 2023; Kumar, 2020; Thommandru, 2021).

Sixth, future studies should expand stakeholder representation beyond employees to include customers, shareholders, regulators, and policymakers. A multi-stakeholder design could combine employee survey data with customer satisfaction measures, financial performance indicators, and regulatory perspectives. Including customers is particularly important given their role in driving DT adoption, while policymakers and regulators influence the institutional environment governing DT initiatives (Tan et al., 2021; Witschel et al., 2019; Lugun, 2024; Zhai, 2024). This is supported by the empirical literature, which shows that regulatory requirements have also formed part of the DT driving forces (Haffke et al., 2016). It has been argued that shareholders are interested in the financial impact of DT on the banks involved (Zhai, 2024); therefore, including their views will help measure the effect of DT on the performance of commercial banks, considering the mediation of IT capability from their point of view.

Seventh, future research should examine demographic and occupational differences in DT effects by explicitly modelling variables such as age, gender, hierarchical position, employment status, and educational level as moderators or grouping variables. Multi-group SEM could be used to assess whether DT impacts employee productivity differently across demographic categories, thereby improving the understanding of heterogeneity in DT outcomes.

Eighth, given conflicting findings in the literature regarding the DT-performance relationship, future research should replicate this study in different national and regional contexts, particularly in other developing or emerging economies. Comparative cross-country studies would help establish the generalisability of the findings and clarify why DT produces positive outcomes in some contexts but weaker or negative effects in others (Bausch et al., 2024; Kadur & Rajshekar, 2022; Shanti et al., 2023).

Furthermore, future research should extend the mixed-sources approach employed in this study. Whereas this study triangulated the measurement of the dependent variable (commercial bank performance) by combining primary and secondary data, future studies could aim to measure all key variables, including DT, ITC, and ITN using both perceptual and objective data. This could involve for example using publicised IT investment figures, patent data for innovation, or audited efficiency ratios to complement survey responses. Such an approach would provide a heightened robust test of the relationships in the model and further diminish the common method bias.

Finally, future studies should examine the impact of alternative digital transformation frameworks and maturity models, such as the Paths to Digital Transformation model, the Digital Transformation Journey model, and digital maturity models, on performance outcomes in commercial banking. Empirically comparing these models would provide practical guidance on which transformation pathways yield the strongest performance benefits.

5.6. Conclusions

This section provides the conclusion of the study. This will be anchored on the literature review, the conceptual framework, the study purpose and more importantly, the results obtained from carrying out the research. In order to bring the conclusion into context, it will be important to first give an overview of the research.

This study sought to investigate the “impact of DT on the performance of commercial banks in Zimbabwe, considering the mediating role of IT capability”. The topic was viewed as important given the importance of commercial banks in an economy (Anand et al., 2024; Modiba, 2020). Commercial banks in Zimbabwe have been facing serious challenges brought about by various forces. This included competition from MNOs and Fintechs (Hokonya, 2024; Kaondera et al., 2023). Empirical research showed that commercial banks in Zimbabwe were saddled with significant non-performing loans (Katuka et al., 2023), thus suggesting that investigating whether DT results in better performance and if IT Capability improves this relationship was of magnified importance. Other push factors that have made a better understanding of DT and its impact on commercial bank performance have been the ever-changing customer demands (Tan et al., 2021; Witschel et al., 2019). An inquiry into whether DT positively impacts commercial bank performance, therefore, became essential given the need for commercial banks to attain a competitive advantage and ensure sustained survival.

While several organisations have been seen to have implemented DT but with not-so-successful results (Diener & Špaček, 2021; Sia et al., 2021; Syed et al., 2022; Tabrizi et al., 2019), this led to the study questioning whether IT capability was critical in mediating the interconnection between DT and the performance of commercial banks, an aspect which this study investigated. While the said studies concluded that there was a high rate of failure of DT initiatives, they did not indicate the potential impact of IT capability in improving the outcome of DT journeys in commercial banks. Yet still, some studies (Kasteli et al., 2022; Yang et al., 2023) ascribed a positive association to this relationship.

Several studies have considered the subject of DT and its impact on performance, but the studies done on commercial banks brought about conflicting results, thereby necessitating this

study. It was recorded that several studies found a positive association between DT and commercial bank performance (Boufounou et al, 2022; Sia et al., 2021; Zuo et al., 2021; Wu & Cheng, 2024) while others either did not find a direct positive relationship or the relationship would only be positive given certain conditions (Kadur & Rajshekar, 2022; Nguyen-Viet & Nguyen, 2023; Reis & Melao, 2023; Tran et al., 2023). These conflicting literature results suggested that there was a need for further research to clarify this relationship.

In investigating the interconnection linking DT and commercial bank performance, and the mediating role of IT capability on the said relationship, the study considered the interplay between DT and various variables such as Employee productivity, IT Capability, and IT Innovation. A scan of the literature indicated that there was a paucity of studies that considered the impact of DT on employee productivity (Maha et al., 2024; Widodo et al., 2024). In addition, how DT influences the IT Capability of banks as well as its impact on IT innovation in the context of DT and commercial bank performance, remained unclear (Nahed et al., 2024; Rizwana et al., 2024).

The fact that several studies were done mainly in the developed world as well as Asian countries was seen as problematic (Cappa et al., 2020; Goldfarb & Tucker, 2019; Xie & Wang, 2023). There were also methodological shortcomings that necessitated the carrying out of this study. In addition, those studies carried out in Zimbabwe considered other areas such as the association between DT and customer satisfaction (Chinakidzwa, 2020; Chindudzi et al., 2020; Hokonya, 2024), as well as the effect of DT on the performance of NGOs (Mazikana, 2023). Based on the researcher's extensive review of the literature, and as far as the researcher is aware, this is the only inquiry to consider how DT affects commercial bank performance, considering the mediating role of IT capability.

The majority of the international studies either utilised case studies (Sia et al., 2021) or qualitative approaches (Hakizimana et al., 2023; Hokonya, 2024; Masinire et al., 2023). This suggested the need to apply a quantitative approach so as to get a better quantification of how DT affects the performance of commercial banks in the Zimbabwean context, considering the mediating role of IT capability.

Overall, it can be seen that this study was essential from various angles. These can be summarised as the need to close methodological gaps, to provide clarity in the face of conflicting research results, and to address inadequate contextual studies. In addition, the study was made crucial due to the paucity of studies that addressed the particular area in the context of commercial banking.

Consequently, this inquiry was proposed to investigate the interplay between DT, commercial banking employee productivity, IT innovation, and commercial bank performance. Also, the inquiry sought to examine the link connecting predictor variables, employee productivity, IT capability, and IT innovation and the output variable “performance of commercial banks in Zimbabwe”. By probing the mediation role of IT capability on the bond between DT and the performance of the employees of commercial banks, this inquiry sought to establish how banks can leverage IT capability to improve the said relationship.

By way of significance, the study sought to add to both the theory and practice arenas. In the sphere of theory, the study sought to add to the knowledge repository by studying the relationship between the various study variables mentioned earlier (Maha et al., 2024; Nahed et al., 2024; Rizwana et al., 2024; Widodo et al., 2024). In order to meet the study objectives stated above, the study was undergirded by an explanatory design which employed a cross-sectional survey. It was based on three theories, namely the TAM, the Digital Orchestra Framework (DOF)

and the Dynamic Capabilities Theory (DCT). Using these theories in this study was intended to contribute to theory by extending their use to explain the key relationships in this study, and particularly their use in the context of commercial banking in Zimbabwe.

From a commercial banking perspective, including those in Zimbabwe, the mediating impact of IT capability on the connection between DT and the performance of commercial banks is not fully understood, given that several studies focused on other variables (Chinakidzwa, 2020; Chindudzi et al., 2020; Hokonya, 2024; Kaondera et al., 2023). In addition, those studies that confirmed the positive association between the study's main variables applied approaches that are different from the current study. This means that this study intended to make significant methodological contributions by applying a different approach. A scan of the literature revealed that there were no studies that considered the mediating impact of IT capability in the Zimbabwean context; thus, the study aimed to expand the existing knowledge base by helping various stakeholders understand the said impact better.

Practically, the study intended to assist commercial bank managers in Zimbabwe with quantifiable insights on the effects of DT on the performance of their institutions. This is because previous studies have indicated the performance pressures that Zimbabwean banks were experiencing in the face of changing customer demands (Hokonya, 2024; Kaondera et al., 2023; Katuka et al., 2023). By quantifying how DT interacts with employee productivity, IT capability, IT innovation, commercial bank performance, and how IT capability mediates the interconnection between DT and commercial bank performance, the study intended to help commercial bank managers to be able to craft strategies that are well-informed and focused. In addition, the study intended to assist policymakers in having a data-driven quantification of the study relationships so that they can draft and implement policies that help commercial banks succeed in the DT journeys.

Because prior studies have indicated that DT journeys have experienced a failure rate as high as 30% (O'Connell et al., 2015, as cited in Boneva, 2018), this study intended to reveal the key variables that will ensure that the performance of commercial banks is sustained, thereby assisting commercial bank management.

Commercial bank shareholders were also seen as beneficiaries of this study, as it would give them data-driven evidence of the influence of DT when it comes to the performance output of commercial banks, considering the mediation of IT capability to make better investment decisions.

To achieve this study's aims and objectives as well as ensure that it answers the questions guiding this study and fulfils its significance, this study was well-designed to ensure that it is sound regarding its methodology so as to produce valid and reliable results (Shodmanov, 2024). The study topic was formulated by reviewing the literature. The study objectives were set, and these culminated in the establishment of research questions and study hypotheses. It was decided that the study followed a quantitative approach as it sought to establish relationships between specific study variables (Perin, 2023).

Before commencing the study, a comprehensive literature review was conducted, which considered key areas surrounding the study subject. It was highlighted in the chapter that DT had become a key area of interest among various stakeholders, including the academic and professional fields (Egodawele et al., 2022; Tran et al., 2023), as it has been seen to affect the performance output of organisations, including commercial banks. The literature review considered the study's theoretical framework by looking at the TAM, DCT and DOF as the theories underpinning the study. These theories were considered important as they would assist the study in explaining the

relationships between the key study variables. Reviewing the literature assisted in developing the study hypotheses.

Supported by various sources in the literature, the study hypothesised that DT influences employee productivity, IT capability, IT innovation and commercial bank performance (Adhikari et al., 2022; Alshammari, 2023; Chen et al., 2021; Sia et al., 2021). The variables of employee productivity, IT capability, and IT innovation were shown to influence commercial bank performance (Erkmen et al., 2020; Midhunde et al., 2023; Shi et al., 2024). The hypothesis was also developed, showing the mediation impact of IT capability on the association between DT and commercial bank performance (Panda & Rath, 2021). These hypotheses then led to the construction of the conceptual framework for the study, which was a diagrammatic depiction of the hypothesised relationships.

To actuate the study, a rigorous study methodology was developed by aligning the study objectives, research questions, and study hypotheses. Because the study is quantitative in nature, it was guided by a positivist approach. It identified all commercial banks in Zimbabwe as the unit of the analysis. The commercial bank employees formed the population of interest. The sample size was meticulously triangulated by applying both “a priori analysis (Memon et al., 2021) using the G*Power 3.1.9.7 software” and “Krejcie and Morgan’s (1970) table”. The power analysis showed that a minimum of 92 respondents were needed to make the results valid. Similarly, Krejcie and Morgan’s (1970) table gave a sample size of 364 participants based on the number of workers in Zimbabwean commercial banks at that time. Ultimately, a robust 310 responses were received, and these comfortably fell within the range given by the two methods. In addition to the primary survey data, secondary data on ROA for each of the 13 commercial banks were systematically collected. This allowed the triangulation of the perceptual performance measures

with objective financial outcomes, thereby strengthening the overall validity of the study's conclusions.

The current research used a structured questionnaire with Likert scales on the closed-ended questions to collect data. The questions were adopted from prior valid studies (Charu et al., 2023; Hasan & İslatince, 2023; Kitsios et al., 2021), and they were aligned with the study questions and hypothesis. This ensured that the study not only provided answers to the study hypotheses but also produced valid and reliable results.

Given that the study involved the participation of human beings in responding to the questionnaire, the study ensured that it upheld ethical standards throughout the inquiry process. Firstly, the researcher obtained approval from the UREC to proceed with the research; secondly, gatekeepers and the local research committee provided their consent. In deploying the questionnaire, informed consent was also obtained from the respondents, explicitly excluding persons with disabilities or those who required parental or guardian consent. In addition, the researcher firmly adhered to ethical standards by guaranteeing confidentiality, securing anonymity, obtaining "informed consent", and safeguarding participants from "harm", as well as shielding "vulnerable study subjects" (Jotwan et al., 2024; Magnani et al., 2018; Seneviratne, 2023; Smith, 2024; Woods et al., 2022).

The study piloted the questionnaire, and some adjustments were made to ensure that it was not subject to misinterpretation. In addition, 3 PhD holders were asked to assess the questionnaire, and the final product reflected their input. The questionnaire was deployed, and data were collected and analysed using SPSS AMOS version 26. Both descriptive and inferential statistics were applied in analysing and interpreting the data. Specifically, the following study questions were aligned with the data analysis techniques.

5.7. Summary of Key Results

This study tested 8 hypotheses, and the results were presented in Chapter 4. Specifically, the hypotheses sought to establish the characteristics and direction of the interconnection between DT and employee output, DT and IT capability, DT and IT innovation, IT innovation and commercial bank performance, IT capability and commercial bank performance, and employee productivity and commercial bank performance. These hypotheses were duly tested using SEM, and the results are summarised below.

5.7.1. Results on DT and Commercial Bank Performance

By testing the hypothesis that “The influence of DT on the performance of commercial banks in Zimbabwe is positive and significant” using SEM, this study established a strong and significant interconnection linking the predictor variable DT and the response construct commercial bank performance. These results resonated with the Dynamic Capabilities Theory, which posited that DT implementation allows organisations to leverage dynamic capabilities, thus positively impacting performance (Ghosh et al., 2022). In terms of previous studies, some studies did not agree that DT positively affects the output of commercial banks due to the costs and negative impact on employees (Kadur & Rajshekar, 2022; Shanti et al., 2023). However, several other studies agreed with the current study results (Cappa et al., 2020; Chen et al., 2021; Goldfarb & Tucker, 2019; Huang, 2021; Qi & Xiao, 2020; Soesilo & Tampubolon, 2023). Given the massive literature and theoretical support for the results, this study concluded that there is a positive association linking DT and the output of commercial banks in Zimbabwe.

5.7.2. Results on DT and IT Capability

The study hypothesised that “DT has a positive influence on IT capability for Zimbabwean commercial banks”. This hypothesis was tested using SEM, and the results confirmed a positive

and significant relationship linking the input construct DT and the output variable IT capability. This resonated with several studies in the literature that concluded that DT positively influenced the IT capability of commercial banks (Barba-Sánchez et al., 2024; Madanayake & Yapa, 2024; Makovoz & Sergii Lysenko, 2024; Porfirio et al., 2024; Sia et al., 2021). These results agreed with the dynamic capability theory, which implied that the implementation of DT by commercial banks may improve their IT capabilities (Nousopoulou et al., 2022; Vial, 2019). Following this, the study concluded that DT positively influences the IT capability of commercial banks in Zimbabwe.

5.7.3. Results on DT and Employee Productivity

The current research tested the hypothesis that “The effects of DT on the productivity of the employees of commercial banks in Zimbabwe are positive and significant”. This hypothesis was accepted, given that SEM confirmed a positive and significant relationship between the independent variable DT and the productivity of commercial bank employees (dependent variable). While some studies concluded that DT does not result in improved employee productivity (Bausch et al., 2024), the current research results found support in the literature with results from various prior studies supporting the current study results (Shwedeh et al., 2020; Khadragy et al., 2022; Ridwan et al., 2020; Adewumi et al., 2024). In addition, these results conformed to the TAM, which was used as the theory to help explain this relationship (Vuković et al., 2019). It was therefore concluded that DT positively influences the performance of commercial bank employees in Zimbabwe.

5.7.4. Results on DT and IT Innovation

In order to establish the type and power of the relationship between DT and IT innovation of Zimbabwean commercial banks, this study tested the hypothesis that “The impact of DT on the IT innovation by Zimbabwean commercial banks is positive and significant”. The results from the

test confirmed a positive and significant relationship between the two variables. The Dynamic Capabilities Theory aligns with these results, thus confirming that this theory can be extended to the current area of study (Cheng et al., 2023; Nooteboom, 2022; Marx et al., 2021). Several outcomes from empirical studies concluded that DT positively influences the IT innovation of commercial banks' lending support to the current study (Alharbi, 2021; Chen et al., 2024; Hokonya, 2024; Zhao et al., 2024). Consequently, the study concluded that DT positively influences the IT innovation of commercial banks in Zimbabwe.

5.7.5. Results on IT Innovation and Commercial Bank Performance

In order to establish the intensity and direction of the interconnection linking IT innovation and commercial bank output, this study tested the hypothesis "The influence of IT innovation on the performance of Zimbabwean commercial banks is positive and significant". The results from the tests that were conducted using SEM confirmed a positive and significant interconnection linking the predictor variable IT innovation and the output variable commercial bank performance. These outcomes are backed by both the study theories and recent studies. The Dynamic Capabilities Theory lent support to the study results as it claimed that dynamic capabilities enhance the innovativeness of commercial banks, thereby resulting in improved performance (Chen et al., 2024; Thuy, 2020; Zhu & Jin, 2023). Recent studies also concluded that IT innovation positively influences the performance of commercial banks (Dwivedi et al., 2024; Lahiri, 2024; Srini, 2023; Swathika, 2024). As a result, the inquiry accepted the hypothesis and resolved that IT innovation has a positive influence on the output of commercial banks in Zimbabwe.

5.7.6. Results on IT Capability and Commercial Bank Performance

This study hypothesised that "The effects of IT capability on the performance of Zimbabwean commercial banks are positive and significant". Using SEM, the hypothesis was

tested, and the results confirmed a positive and significant interconnection linking IT capability and commercial bank output. Although some studies did not confirm these study results (Saira & Farhan, 2022; Rahman, 2017), more studies agreed with the current study (Audy et al., 2023; Hamida, 2018; Yaaqub et al., 2023). The Dynamic Capabilities Theory also supported these results as it posited that commercial banks could leverage IT capability to improve their performance (Nousopoulou et al., 2022; Tian et al., 2023; Vial, 2019). Resultantly, this study concluded that IT capability positively influences the performance of Zimbabwean commercial banks.

5.7.7. Results on Employee Productivity and Commercial Bank Performance

By testing the hypothesis that “Employee productivity positively affects commercial bank performance in Zimbabwe”, this study established that there was a positive and significant interconnection linking the output of commercial bank employees and the performance of the commercial bank. The TAM lent support to this finding, given that the acceptance of technology by employees will result in improved productivity due to the elimination of redundant processes (Audy et al., 2023). Similarly, the Dynamic Capabilities Theory also supported this outcome, given that employees can be viewed as key dynamic capabilities for commercial banks (Stein et al., 2023; Wadajo & Kero, 2023). Following the above, the study determined that employee productivity positively affects the performance of commercial banks in Zimbabwe.

5.7.8. Results on the Mediation of IT Capability on the Connection Between DT and Commercial Bank Performance

This study hypothesised that “The mediating impact of IT capability on the relationship between DT and commercial bank performance in Zimbabwe is positive”. This hypothesis was tested using SEM and revealed that IT capability positively influences the interplay linking DT and commercial bank performance. This found support in the theory applied in this study to help

clarify this interconnection. The Digital Orchestra Framework claimed that IT capability positively mediates the interconnection linking DT and the performance of commercial banks (Khin & Ho, 2019; Li et al., 2023). In addition, there seems to be significant evidence from the literature supporting these results. Prior valid studies (Adam et al., 2021; Castillo-Vergara, 2021; Elia et al., 2021; Grover, 2022; Modiba et al., 2022; Mekuanint et al., 2024; Schrage et al., 2022; Shanti et al., 2023; Yudha et al., 2024). As a result, this study concluded that IT capability positively influences the bond between DT and commercial bank performance.

5.8. Originality of the Study, Summary of Theoretical Contributions, and Contribution to Knowledge

The study results assisted in fulfilling the theoretical significance of this study. The section below discusses the originality of the current study and how it contributed to theory, given the current study's results as well as the literature reviewed in Chapter 2.

As far as the researcher's knowledge, this study is the first of its kind in Zimbabwe that has considered how DT sways the performance of commercial banks, considering the mediation of IT capability, thereby asserting the originality of the study. Furthermore, the study adopted different measurement scales from previous valid studies, which may form the basis for future studies. The discoveries of this inquiry also present original context-specific perspectives, that is, they considered the unique Zimbabwean environment for commercial banks, thereby giving results that respected the unique business environment in Zimbabwe. Overall, in the Zimbabwean context, the study concluded that DT impacts the dependent variables of employee productivity, IT capability, and IT Innovation positively for Zimbabwean commercial banks. Furthermore, the variables of DT, Employee productivity, IT capability and IT innovation were tested regarding how they

impacted the performance of commercial banks in Zimbabwe, thereby providing academics greater clarity regarding the interaction of these variables in the Zimbabwean context.

The current study provided evidence that IT capability improves the interconnection between DT and commercial bank performance. This agrees with recent studies that concluded that IT capability positively influences the link between DT and the performance of commercial banks (Barba-Sánchez et al., 2024; Grover, 2022; Mekuanint et al., 2024; Modiba et al., 2022; Shanti et al., 2023; Yudha et al., 2024), supporting the existing results from the literature, thereby enriching the knowledge repository.

The study contributed to the theory by studying the bearing of DT on the output of commercial banks in Zimbabwe while considering the mediating impact of IT capability. As revealed in the literature review, most studies in Zimbabwe focused on other areas (Hokonya, 2024; Kaondera et al., 2023; Phiri, 2020), meaning there was a paucity of studies regarding this area.

This study exhibited originality in that it used the Dynamic Capability Theory, the Technology Acceptance Model and the Digital Orchestra Framework as the underpinning theoretical framework for this study. Given that the researcher views this as the first study of its kind in Zimbabwe, it follows that the application of these theories has extended their use to the subject of DT insofar as it impacts commercial bank performance, considering the mediation of IT capability.

Considering the study results of the current study, several contributions to theory have been cited. These have assisted in offering a rich contextualization of the interaction between the study variables in the Zimbabwean context. Regarding the interconnection linking DT and employee productivity, it was revealed in Chapter 2 that there were conflicting results in the literature. While

some concluded that there was no positive association between the two (Bausch et al., 2024; Kadur & Rajshekar, 2022), others found a positive relationship between the two (Shwedeh et al., 2020; Khadragy et al., 2022; Ridwan et al., 2020; Adewumi et al., 2024). This study revealed that DT positively influences the performance of commercial bank employees, thereby contributing to theory by enhancing a better evaluation of this relationship in the face of conflicting results.

Similarly, this inquiry determined that a positive and significant interconnection links DT and commercial bank performance, yet the literature presented mixed results. Some researchers concluded that DT does not necessarily lead to positive commercial bank performance (Kadur & Rajshekar, 2022; Shanti et al., 2023), while others (Cappa et al., 2020; Goldfarb & Tucker, 2019; Huang, 2021; Soesilo & Tampubolon, 2023; Xie & Wang, 2023) returned a positive association between the concerned variables. Given these conflicting views, the outcomes of this study gave an empirical quantification of these variables in the context of Zimbabwe. This provided definitive evidence to resolve these contradictions of the interaction between these variables, thereby enriching the database of knowledge.

The review of the extant literature disclosed that the interconnection linking IT capability and commercial bank performance is least understood. This is because several studies which sought to examine the relationship between these two variables produced conflicting results. As revealed in Chapter 2, some studies contend that IT capability does not result in improved commercial bank performance (Arora & Rahman, 2017; Pye et al., 2023). Nonetheless, other studies revealed that IT capability positively influences the performance of commercial banks (Ferraris et al., 2019; Khan et al., 2023; Joensuu-Salo et al., 2023; Ritter & Pedersen, 2020; Saunila, 2020). The results of this study lined up with the latter, showing that IT capabilities positively influence the performance of commercial banks in Zimbabwe. The current study,

therefore, made some contribution to the theory by providing a contextual quantification of how IT capability impacts commercial bank performance, given the conflicting results in the literature.

This study made some methodological contributions in studying how DT affects the output of commercial banks, considering the mediating effects of IT capability. Applying a quantitative approach that used primary data meant that the knowledge base was enriched. This is because it was revealed that many studies applied case studies (Sia et al., 202), qualitative approaches (Madanayake & Yapa, 2024; Makovoz & Sergii Lysenko, 2024; Porfirio, et al., 2024; Sia et al., 2021). The use of a quantitative approach thus ensured the precise measurement of the variables under study, thereby adding empirical evidence to the body of knowledge.

The current study also provided evidence of the nature and strength of the relationship between IT innovation and the performance of commercial banks. The study establishes that the IT innovation of commercial banks in Zimbabwe positively influences their performance. This creates a strong basis for future research.

5.9. Suggested Areas for Future Research

Following this investigation and the results obtained, the study came up with various areas that future researchers may want to consider. The following section summarises these areas for potential research.

The study results indicated that future research may seek to replicate or extend the results of this study by employing either a qualitative approach or a mixed-methods approach. This will assist in providing deeper meaning as well as ensuring the validation of the results from the quantitative approach (Dalei, 2023; Tahir, 2024). Furthermore, future research may consider the use of both primary and secondary data, given that most studies have applied either, and this one only used primary data.

Future studies may need to consider the mediating impact of other variables such as culture, regulation or customer satisfaction. This is because this study considered only IT capability as the mediating variable. Consequently, this study recommended that future studies may need to consider how changing customer needs may influence the link between DT and commercial bank performance. In addition, the research recommended that future studies may consider how modern technologies such as Big Data Analytics, Cloud Computing, AI and Machine Learning may influence the connection between DT and commercial bank performance. These emerging technologies are becoming increasingly important in determining the performance of commercial banks (Chwila, 2023; Kumar, 2020; Thommandru, 2021).

Future research may consider the moderating impact of other external factors such as bank size, regulatory changes and bank type. This will enable researchers to gather a more nuanced understanding of how these moderate the interplay between DT and commercial bank performance (Martínez-Noya & Garcia-Canal, 2024).

Given that the current study was a cross-sectional survey, which limits the isolation of causal effects, further studies may consider longitudinal studies and comparative studies across countries, regions or types of banks. Such studies will improve the quantification of the long-term impact of the interaction between the current study variables.

This study questioned whether gender, age, hierarchical position, employment status or educational qualifications have an influence on the connection between DT and commercial bank performance. The study therefore recommends further studies on whether these variables have any impact on the link between DT and commercial bank performance.

While this study's results indicated a positive connection between DT and employee productivity, DT and commercial bank performance and IT capability and commercial bank

performance, it was shown in the literature that there are some studies that did not find an association between these variables (Bausch et al., 2024; Kadur & Rajshekar, 2022; Shanti et al., 2023). This study, therefore, recommended further studies using different contextual settings to bring clarity to these associations.

While this study's results showed that DT positively impacts commercial bank performance, and the IT capability positively mediates the interconnection linking DT and commercial bank performance, these results were obtained by considering the perceptions of commercial bank employees in Zimbabwe. The current study, therefore, recommended that future studies may consider other stakeholders such as commercial bank shareholders, customers and regulators either individually or combined. Involving these stakeholders will help provide a holistic analysis of the relationships at hand (Lugun, 2024; Zhai, 2024).

REFERENCES

- Angie, P. (2023). Research design and methods in social sciences research. In A. K. Bhatia & A. Tripathi (Eds.), *Advances in knowledge acquisition, transfer and management* (pp. 35–51). IGI Global. <https://doi.org/10.4018/978-1-6684-6859-3.ch007>
- Abdurrahman, A., Gustomo, A., & Prasetio, E. A. (2024). Impact of dynamic capabilities on digital transformation and innovation to improve banking performance: A TOE framework study. *Journal of Open Innovation: Technology, Market, and Complexity*. <https://doi.org/10.1016/j.joitmc.2024.100215>
- Anthonyamy, L., Koo, A. C., & Hew, S. H. (2020). Self-regulated learning strategies in higher education: Fostering digital literacy for sustainable lifelong learning. *Education and Information Technologies*, 25(4), 2393–2414. <https://doi.org/10.1007/s10639-020-10201-8>
- Anupa, B. S., & Goveas, C. (2023). Makeover of banks by digital interventions and innovations by fintechs. *International Journal of Case Studies in Business, IT, and Education*, 7(2), 226–237. <https://doi.org/10.47992/IJCSBE.2581.6942.0270>
- Aral, S., & Weill, P. (2007). IT assets, organizational capabilities, and firm performance: How resource allocations and organizational differences explain performance variation. *Organization Science*, 18(5), 763–780. <https://doi.org/10.1287/orsc.1070.0306>
- Aras, A., & Büyüközkan, G. (2023). Digital transformation journey guidance: A holistic digital maturity model based on a systematic literature review. *Systems*, 11(4), 213. <https://doi.org/10.3390/systems11040213>
- Aravopoulou, E. (2016). Organisational change: A conceptual and theoretical review. *Modern Management Systems*, 10, 19–32. <https://doi.org/10.37055/nsz/129349>

- Arora, B., & Rahman, Z. (2017). Assessing the impact of information technology capability on firm profitability and market value in emerging economies: A study from India. *International Journal of Business Information Systems*, 25(2), 192–212. <https://doi.org/10.1504/IJBIS.2017.10004401>
- Arunachalam, S., & Spence, S. M. J. (2023). Generalized stratified sampling for efficient reliability assessment of structures against natural hazards. *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering*, 9(4). <https://doi.org/10.1061/AJRUA6.RUENG-1051>
- Asamoah, C. A., Klapalová, A., & Nsiah, T. K. (2024). Digital transformation in the banking sector: Evaluating continuance usage intention. *Proceedings of the International Conference on Business Excellence*, 18, 313–323. <https://doi.org/10.2478/picbe-2024-0272>
- Asiamah, N., Mensah, H. K., & Oteng-Abayie, E. F. (2017). General, target, and accessible population: Demystifying the concepts for effective sampling. *The Qualitative Report*, 22(6), 1607–1622. <https://doi.org/10.46743/2160-3715/2017.2674>
- Aslam, M., Shafi, I., Ahmed, J., de Marin, M. S. G., Flores, E. S., Gutiérrez, M. A. R., & Ashraf, I. (2023). Impact of innovation-oriented human resource on small and medium enterprises' performance. *Sustainability*, 15(7), 6273. <https://doi.org/10.3390/su15076273>
- Aspiranti, T., Ali, Q., & Amaliah, I. (2023). Big data analytics to support open innovation strategies in banks. *Risks*, 11(6), 106. <https://doi.org/10.3390/risks11060106>
- Atkočiūnienė, Z. O., & Siudikienė, D. (2021). Communication management in promoting knowledge and creativity in fostering innovations in the creative organizations. *Creativity Studies*, 14(2), 549–576. <https://doi.org/10.3846/cs.2021.14021>

- Attia, M., & Sinha, J. K. (2023). Reliability of quantitative risk analysis through an industrial case study. *Journal of Quality in Maintenance Engineering*, 29(1), 71–93. <https://doi.org/10.1108/JQME-03-2021-0022>
- Audy, T., Kartono, R., Hamsal, M., & Furinto, A. (2023). The effect of digital talent and digital capability on bank performance: Perspective of regional development bank employees. *Proceedings of the International Conference on Business Excellence*, 17, 2085–2096. <https://doi.org/10.2478/picbe-2023-0180>
- Augustin, N. A., Lusianti, D., & Rahayu, T. (2024). Organizational performance: Integration of commitment, spirit, and teamwork. In *Proceedings of the 1st International Conference on Economic, Management, and Accounting* (pp. 232–244). KnE Social Sciences. <https://doi.org/10.18502/kss.v9i17.16333>
- Autio, E., Nambisan, S., Thomas, L. D., & Wright, M. (2018). Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. *Strategic Entrepreneurship Journal*, 12(1), 72–95. <https://doi.org/10.1002/sej.1266>
- Avevor, F. (2024). Public sector digitalization programmes in Ghana and Nigeria: Opportunities and challenges. *International Journal of Research and Scientific Innovation*, 11(8), 60–66. <https://doi.org/10.51244/IJRSI.2024.1108060>
- Aysha, K., Kiani, K., Naureen, Z., Henehan, G., Brown, R., Sieving, P., Sykora, P., Marks, R. S., Capodicasa, N., Miertus, S., Dondossola, D., Tartaglia, G. M., Dundar, M., Malacarne, D., Bonetti, G., Donato, K., Medori, M. C., Samaja, M., Connelly, S. T., ... Farronato, G. (2022). Methodology for clinical research. *Journal of Preventive Medicine and Hygiene*, 63(2S3), E276–E285. <https://doi.org/10.15167/2421-4248/jpmh2022.63.2S3.2769>

- Azam, M. G. (2022). In-depth case interview. In M. R. Islam, N. A. Khan, & R. Baikady (Eds.), *Principles of social research methodology* (pp. 95–108). Springer. https://doi.org/10.1007/978-981-19-5441-2_9
- Azeem, M. (2022). A modified version of diagonal systematic sampling in the presence of linear trend. *PLOS ONE*, *17*(3), Article e0265179. <https://doi.org/10.1371/journal.pone.0265179>
- Azubuike, V. M. U. (2013). Technological innovation capability and firm's performance in new product development. *Communications of the IIMA*, *13*(1), Article 4. <https://doi.org/10.58729/1941-6687.1206>
- Babatunde, A. A. (2024). Reliability and validity in quantitative research. In R. Evans (Ed.), *Advances in educational technologies and instructional design* (pp. 86–102). IGI Global. <https://doi.org/10.4018/979-8-3693-2603-9.ch007>
- Bag, S., Pretorius, J. H. C., Gupta, S., & Dwivedi, Y. K. (2021). Role of institutional pressures and resources in the adoption of big data analytics powered artificial intelligence, sustainable manufacturing practices and circular economy capabilities. *Technological Forecasting and Social Change*, *163*, Article 120420. <https://doi.org/10.1016/j.techfore.2020.120420>
- Bakri, A., Hasanah, N., & Lasmiatun, K. M. T. (2024). Financial technology innovation and banking industry transformation. *Multifinance*, *1*(3), 230–238. <https://doi.org/10.61397/mfc.v1i3.112>
- Baloch, M. A., Meng, F., & Bari, M. W. (2018). Moderated mediation between IT capability and organizational agility. *Human Systems Management*, *37*(2), 195–206. <https://doi.org/10.3233/HSM-17150>

- Bandon, A., & Nugroho, S. H. (2023). The assessment of company performance target using Balanced Scorecard methods. *International Journal of Professional Business Review*, 8(5), Article e01968. <https://doi.org/10.26668/businessreview/2023.v8i5.1968>
- Banerjee, P., & Bose, I. (2019). Mobile banking adoption in India: A study based on Innovation Diffusion Theory and the Unified Theory of Acceptance and Use of Technology. *Telematics and Informatics*, 38, 94–104. <https://doi.org/10.1016/j.tele.2018.09.008>
- Banerjee, T. (2019). Designing a primary survey-based research. In *Research methodology for social sciences* (pp. 167–180). Routledge. <https://doi.org/10.4324/9780367810344-9>
- Banovic-Curguz, N., & Ilisevic, D. (2018). Customer-centric culture as enabler of digital transformation. *2018 41st International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO)* (pp. 400–404). <https://doi.org/10.23919/MIPRO.2018.8400076>
- Bansal, R., Singh, A., Kumar, S., & Gupta, R. (2018). Evaluating factors of profitability for Indian banking sector: A panel regression. *Asian Journal of Accounting Research*, 3(2), 236–254. <https://doi.org/10.1108/AJAR-08-2018-0026>
- Barba-Sánchez, V., Meseguer-Martínez, A., Gouveia-Rodrigues, R., & Raposo, M. L. (2024). Effects of digital transformation on firm performance: The role of IT capabilities and digital orientation. *Heliyon*, 10(6), Article e27725. <https://doi.org/10.1016/j.heliyon.2024.e27725>
- Barroga, E., & Matanguihan, G. F. (2022). A practical guide to writing quantitative and qualitative research questions and hypotheses in scholarly articles. *Journal of Korean Medical Science*, 37(16), Article e121. <https://doi.org/10.3346/jkms.2022.37.e121>

- Bartlett, J. E., II, Kotrlik, J. W., & Higgins, C. C. (2001). Organizational research: Determining appropriate sample size in survey research. *Information Technology, Learning, and Performance Journal*, 19(1), 43–50. <https://doi.org/10.58729/1941-6687.1206>
- Bausch, D., Kraemer, T., & Mauroner, O. (2024). Technology-induced stress and employee resistance in the context of digital transformation and identification of countermeasures. *International Journal of Innovation and Technology Management*, 21(4), Article 2450029. <https://doi.org/10.1142/S0219877024500299>
- Beck, K. (2024). Surveys and questionnaires. In A. E. M. Eltorai, C. H. Eversull, & A. H. Daniels (Eds.), *Translational orthopedics* (pp. 225–227). Elsevier. <https://doi.org/10.1016/B978-0-323-85663-8.00015-5>
- Beehr, T. A., Kim, M., & Armstrong, I. W. (2022). How much do survey response rates affect relationships among variables? *International Journal of Social Research Methodology*, 25(4), 567–589. <https://doi.org/10.1080/13645579.2022.2113663>
- Benítez, J., Arenas, A., Esteves, J., & Labajo, V. (2022). Impact of digital leadership capability on innovation performance: The role of platform digitization capability. *Information & Management*, 59(8), Article 103590. <https://doi.org/10.1016/j.im.2022.103590>
- Berman, S. J. (2012). Digital transformation: Opportunities to create new business models. *Strategy & Leadership*, 40(2), 16–24. <https://doi.org/10.1108/10878571211209314>
- Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: An empirical investigation. *MIS Quarterly*, 24(1), 169–196. <https://doi.org/10.2307/3250983>

- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital business strategy: Toward a next generation of insights. *MIS Quarterly*, 37(2), 471–482. <https://doi.org/10.25300/MISQ/2013/37:2.3>
- Bhatia, V., & Arora, N. (2020). Schumpeter's theory of creative destruction and digital transformation in the banking sector. *International Journal of Advanced Research in Engineering and Technology*, 11(4), 93–98. <https://doi.org/10.34218/IJARET.11.4.2020.009>
- Bhuvanewari, C. M., & Maruthamuthu, K. (2024). Analysing the art of service quality and customer satisfaction of digital banking services: A SEM approach. *International Review of Management and Marketing*, 14(4), 202–209. <https://doi.org/10.32479/irmm.16234>
- Bican, P. M., & Brem, A. (2020). Digital business model, digital transformation, digital entrepreneurship: Is there a sustainable “digital”? *Sustainability*, 12(13), 5239. <https://doi.org/10.3390/su12135239>
- Blokland, P., & Reniers, G. (2021). Achieving organisational alignment, safety and sustainable performance in organisations. *Sustainability*, 13(18), Article 10400. <https://doi.org/10.3390/su131810400>
- Boneva, M. (2018, May 31–June 1). *Challenges related to the digital transformation of business companies* [Conference session]. 6th International Conference on Innovation, Management, Entrepreneurship and Sustainability, Prague, Czech Republic. Cisco. (n.d.). *Digital business transformation*. Retrieved October 26, 2024, from https://www.cisco.com/c/dam/en_us/about/business-insights/docs/digital-business-transformation.pdf

- Bongiorno, G., Rizzo, D., & Vaia, G. (2018). *CIOs and the digital transformation: A new leadership role*. Springer. <https://doi.org/10.1007/978-3-319-31026-8>
- Boufounou, P., Mavroudi, M., Toudas, K., & Georgakopoulos, G. (2022). Digital transformation of the Greek banking sector in the COVID era. *Sustainability*, 14(19), Article 11855. <https://doi.org/10.3390/su141911855>
- Braun, T., & Sydow, J. (2019). Selecting organizational partners for interorganizational projects: The dual but limited role of digital capabilities in the construction industry. *Project Management Journal*, 50(4), 398–408. <https://doi.org/10.1177/8756972819857477>
- Brooks, C., Holtom, B., Baruch, Y., Aguinis, H., & Ballinger, G. A. (2022). Survey response rates: Trends and a validity assessment framework. *Human Relations*, 75(8), 1560–1584. <https://doi.org/10.1177/00187267211070769>
- Brown, A., & Grant, G. (2020). Digital transformation in the banking industry: A systematic literature review. *Journal of Information Technology*, 35(1), 17–41. <https://doi.org/10.1057/s41265-019-00160-w>
- Brown, J., Pope, N., Bosco, A. M., Mason, J., & Morgan, A. (2020). Issues affecting nurses' capability to use digital technology at work: An integrative review. *Journal of Clinical Nursing*, 29(15–16), 2801–2819. <https://doi.org/10.1111/jocn.15321>
- Bryman, A. (2016). *Social research methods* (4th ed.). Oxford University Press.
- Bunmi, I. O. (2022). A model for selecting theoretical framework through epistemology of research paradigms. *African Journal of Inter/Multidisciplinary Studies*, 4*(1), 275–285. <https://doi.org/10.51415/ajims.v4i1.1022>

- Bvuma, S., & Marnewick, C. (2020). Sustainable livelihoods of township small, medium and micro enterprises towards growth and development. *Sustainability*, *12*(8), Article 3149. <https://doi.org/10.3390/su12083149>
- Calp, M. (2019). The role of artificial intelligence within the scope of digital transformation in enterprises. In A. K. Aggarwal (Ed.), *Advanced MIS and digital transformation for increased creativity and innovation in business* (pp. 122–146). IGI Global. <https://doi.org/10.4018/978-1-5225-9550-2.ch006>
- Canhoto, A. I., Quinton, S., Pera, R., Molinillo, S., & Simkin, L. (2021). Digital strategy aligning in SMEs: A dynamic capabilities perspective. *The Journal of Strategic Information Systems*, *30*(3), Article 101682. <https://doi.org/10.1016/j.jsis.2021.101682>
- Cappa, F., Oriani, R., Peruffo, E., & McCarthy, I. (2021). Big data for creating and capturing value in the digitalized environment: Unpacking the effects of volume, variety, and veracity on firm performance. *Journal of Product Innovation Management*, *38*(1), 49–67. <https://doi.org/10.1111/jpim.12545>
- Carcary, M., & Doherty, E. (2022). Digital transformation: A foundational capability building block perspective on maturing the IT capability. In *Proceedings of the 18th European Conference on Management, Leadership and Governance* (pp. 80–88). <https://doi.org/10.34190/ecmlg.18.1.849>
- Casteel, A., & Bridier, N. L. (2021). Describing populations and samples in doctoral student research. *International Journal of Doctoral Studies*, *16*, 339–362. <https://doi.org/10.28945/4766>
- Cenamor, J., Parida, V., & Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and

- ambidexterity. *Journal of Business Research*, 100, 196–206. <https://doi.org/10.1016/j.jbusres.2019.03.035>
- Chamorro-Premuzic, T. (2024). Will digital banking transformation affect consumer behavior in the financial sector? *Journal of Applied Structural Equation Modeling*, 8(1), 6–13. [https://doi.org/10.47263/jasem.8\(1\)06](https://doi.org/10.47263/jasem.8(1)06)
- Chan, J. T. (2020). Snowball sampling and sample selection in a social network. In Á. de Paula, E. Tamer, & M.-C. Voia (Eds.), *The econometrics of networks* (pp. 61–80). Emerald Publishing. <https://doi.org/10.1108/S0731-905320200000042008>
- Chandra, Y., & Shang, L. (2019). *Qualitative research using R: A systematic approach*. Springer. <https://doi.org/10.1007/978-981-13-3170-1>
- Chang, A., Ferguson, T. S., Rothschild, J. E., Page, B. I., & Fellow, B. M. (2021). Ambivalence about international trade in open- and closed-ended survey responses. *Reality Check*, 6(2), 45–62. <https://doi.org/10.36687/INETWP162>
- Charu, B., Fatima, B., & Vinod, S. (2023). Growth and future of neo banks – A survey. *2023 IEEE International Conference on Computational Intelligence and Knowledge Economy (ICCIKE)* (pp. 1–6). <https://doi.org/10.1109/ICCIKE58312.2023.10131692>
- Chaudhary, S. (2022). Bank locker system internet of things (IoT). *International Journal of Advanced Research in Science, Communication and Technology*, 2(2), 513–515. <https://doi.org/10.48175/IJARSCT-3342>
- Chaudhuri, R., Chatterjee, S., & Vrontis, D. (2022). Digital transformation of the organisations using AI integrated partner relationship management. In A. Thrassou, D. Vrontis, L. Efthymiou, Y. Weber, S. M. R. Shams, & E. Tsoukatos (Eds.), *Business advancement*

- through technology: Vol. 1* (pp. 25–46). Palgrave Macmillan. https://doi.org/10.1007/978-3-031-07769-2_2
- Che Haron @ Shafiee, H. I., Abd Halim, M. S., & Ismail, M. (2023). Assessment model for determinant factor constructs in edu-tourism using confirmatory factor analysis (CFA). *International Journal of Sustainable Development and Planning*, 18(7), 2031–2040. <https://doi.org/10.18280/ijstdp.180705>
- Chege, K., & Otieno, O. (2020). Research philosophy design and methodologies: A systematic review of research paradigms in information technology. *Global Scientific Journals*, 8(5), 33–38. <https://11nq.com/kkN5H>
- Chen, C. L., Lin, Y. C., Chen, W. H., Chao, C. F., & Pandia, H. (2021). Role of government to enhance digital transformation in small service business. *Sustainability*, 13(3), Article 1028. <https://doi.org/10.3390/su13031028>
- Chen, J. (2023). Naturalistic observation. In *The Cambridge handbook of research methods and statistics for the social and behavioral sciences* (pp. 68–80). Cambridge University Press.
- Chen, J., Liu, H., & Shen, Z. (2024). The impact of digital transformation on Chinese commercial banks' risk-taking. *Journal of World Economy*, 3(2), 85–88. <https://doi.org/10.56397/jwe.2024.06.09>
- Chen, J., Tian, Y., & Shen, Z. (2024). Research on the impact of digital transformation on commercial bank performance. *Frontiers in Management Science*, 3(3), 1–15. <https://doi.org/10.56397/fms.2024.06.04>
- Chen, J., Tian, Y., & Shen, Z. (2024). Research on the impact of digital transformation on commercial bank performance. *Frontiers in Management Science*, 3(3), 31–34. <https://doi.org/10.56397/fms.2024.06.04>

- Chen, K., Shen, C. H., Kao, L., & Yeh, C. Y. (2018). Bank liquidity risk and performance. *Review of Pacific Basin Financial Markets and Policies*, 21(1), Article 1850007. <https://doi.org/10.1142/S0219091518500078>
- Chen, M. A., Wu, Q., & Yang, B. (2019). How valuable is FinTech innovation? *The Review of Financial Studies*, 32(5), 2062–2106. <https://doi.org/10.1093/rfs/hhy130>
- Chen, P., & Kim, S. (2023). The impact of digital transformation on innovation performance - The mediating role of innovation factors. *Heliyon*, 9(3), Article e13916. <https://doi.org/10.1016/j.heliyon.2023.e13916>
- Chen, Y., & Huang, J. (2019). Customer-centric digital transformation: A case study of a Taiwanese bank. *Journal of Business Research*, 94, 411–418. <https://doi.org/10.1016/j.jbusres.2018.09.041>
- Cheng, S., Fan, Q., & Huang, M. (2023). Strategic orientation, dynamic capabilities, and digital transformation of commercial banks: A fuzzy-set QCA approach. *Sustainability*, 15(3), 1915. <https://doi.org/10.3390/su15031915>
- Chiguvi, D., Zaranyika, T., Marozwa, M., & Zhou, N. (2023). Assessment of the effect of resource allocation on digital transformation in the Zimbabwean life insurance industry. *International Journal of Research in Business and Social Science*, 12(1), 174–178. <https://doi.org/10.20525/ijrbs.v12i1.2295>
- Chikandiwa, C., Chikandiwa, T., & Mawere, M. (2020). Factors influencing the adoption of mobile banking services in Zimbabwe: A case study of selected commercial banks in Harare. *Journal of African Business Research*, 15(1), 47–67. <https://doi.org/10.1080/15228916.2020.1713835>

- Chilisa, B., & Kawulich, B. (2011). Selecting a research approach: Paradigm, methodology and methods. In *Research methods in educational leadership and management* (pp. 3–22). SAGE Publications.
- Chinakidzwa, M. (2020). *Digital marketing resources, capabilities, and market performance of agro-processors in Harare, Zimbabwe* [Master's thesis, University of KwaZulu-Natal]. ResearchSpace. <https://researchspace.ukzn.ac.za/handle/10413/20183>
- Chindudzi, G., Maradze, T. C., & Nyoni, T. (2020). The impact of digital banking on the performance of commercial banks in Zimbabwe. *International Journal of Advance Research and Innovative Ideas in Education*, 6(6), 985–997. <https://ijariie.com/FormDetails.aspx?MenuScriptId=212129>
- Chitimira, H., & Torerai, E. (2021). The nexus between mobile money regulation, innovative technology and the promotion of financial inclusion in Zimbabwe. *Potchefstroom Electronic Law Journal*, 24(1), 1–33. <https://doi.org/10.17159/1727-3781/2021/v24i0a10739>
- Chitokwindo, S., Mago, S., & Hofisi, C. (2014). Financial inclusion in Zimbabwe: A contextual overview. *Mediterranean Journal of Social Sciences*, 5(20), 415–423. <https://doi.org/10.5901/mjss.2014.v5n20p415>
- Chittaranjan, A., & Andrade, C. (2021). The limitations of quasi-experimental studies, and methods for data analysis when a quasi-experimental research design is unavoidable. *Indian Journal of Psychological Medicine*, 43(5), 416–422. <https://doi.org/10.1177/025371762111034707>

- Christodoulou, I., Jahangir, W., Robert, J., Reinhardt, K., & Ivanov, K. (2022). The strategic role of middle managers in the formulation and implementation of digital transformation projects. *Strategic Change*, 31(5), 491–506. <https://doi.org/10.1002/jsc.2528>
- Chukwuere, J. E. (2021). Theoretical and conceptual framework: A critical part of information systems research process and writing. *Review of International Geographical Education*, 11(9), 2678–2683. <https://doi.org/10.48047/rigeo.11.09.234>
- Chung, J. C., Biddix, J. P., & Park, H. W. (2020). Using digital technology to address confirmability and scalability in thematic analysis of participant-provided data. *The Qualitative Report*, 25(9), 3298–3311. <https://doi.org/10.46743/2160-3715/2020.4046>
- Chwila, A. (2023). The application of artificial intelligence models in commercial banks – opportunities and threats. *Acta Universitatis Lodzianis. Folia Oeconomica*, 362, 63–98. <https://doi.org/10.18778/0208-6018.362.04>
- Cianci, J., Weibel, D., & Elfering, A. (2024). Measuring work demands and resources of digitalisation: The ICT resources and stressors scale. *Swiss Psychology Open*, 4(1), Article 4. <https://doi.org/10.5334/spo.59>
- Cichosz, M., Wallenburg, C. M., & Knemeyer, A. M. (2020). Digital transformation at logistics service providers: Barriers, success factors and leading practices. *The International Journal of Logistics Management*, 31(2), 209–238. <https://doi.org/10.1108/IJLM-04-2019-0102>
- Comfort, A. A., Klapalová, A., & Nsiah, K. T. (2024). Digital transformation in the banking sector: Evaluating continuance usage intention. *Proceedings of the International Conference on Business Excellence*, 18, 313–323. <https://doi.org/10.2478/picbe-2024-0272>

- Condon, P. B., Simpson, J. E., & Emanuel, M. (2022). Research data integrity: A cornerstone of rigorous and reproducible research. *IASSIST Quarterly*, 46(3), 1–19. <https://doi.org/10.29173/iq1033>
- Conțu, E. (2020). Organizational performance – theoretical and practical approaches; study on students’ perceptions. *Proceedings of the International Conference on Business Excellence*, 14(1), 398–406. <https://doi.org/10.2478/picbe-2020-0038>
- Correani, A., De Massis, A., Frattini, F., Petruzzelli, A. M., & Natalicchio, A. (2020). Implementing a digital strategy: Learning from the experience of three digital transformation projects. *California Management Review*, 62(4), 37–56. <https://doi.org/10.1177/0008125620934864>
- Coulon, Y. (2020). Profitability and performance ratios. In *Rational investing with ratios* (pp. 85–104). Palgrave Pivot. https://doi.org/10.1007/978-3-030-34265-4_5
- Covvey, J. R., McClendon, C., & Gionfriddo, M. R. (2023). Back to the basics: Guidance for formulating good research questions. *Research in Social and Administrative Pharmacy*, 19(11), 1431–1436. <https://doi.org/10.1016/j.sapharm.2023.09.009>
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Sage.
- Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

- Crittenden, A. B., Crittenden, V. L., & Crittenden, W. F. (2019). The digitalization triumvirate: How incumbents survive. *Business Horizons*, 62(2), 259–266. <https://doi.org/10.1016/j.bushor.2018.11.005>
- Cueto, L. J., Frisnedi, A. F. D., Collera, R. B., Batac, K. I. T., & Agaton, C. B. (2022). Digital innovations in MSMEs during economic disruptions: Experiences and challenges of young entrepreneurs. *Administrative Sciences*, 12(1), 8. <https://doi.org/10.3390/admsci12010008>
- da Costa, R. L., Cavalheiro, I., Gonçalves, R., Dias, Á., da Silva, R. V., & Pereira, L. (2022). The influence of artificial intelligence on online behaviour. *International Journal of Services Operations and Informatics*, 12(2), 119–143. <https://doi.org/10.1504/IJSOI.2022.126326>
- Dąbrowska, J., Almpantopoulou, A., Brem, A., Chesbrough, H., Cucino, V., Di Minin, A., Giones, F., Hakala, H., Marullo, C., Mention, A., Mortara, L., Nørskov, S., Nylund, P. A., Oddo, C. M., Radziwon, A., & Ritala, P. (2022). Digital transformation, for better or worse: A critical multi-level research agenda. *R&D Management*, 52(5), 930–954. <https://doi.org/10.1111/radm.12531>
- Dalei, S. R. (2023). Mixed method research. In *Futuristic trends in pharmacy & nursing* (Vol. 2, pp. 155–162). BP International. <https://doi.org/10.58532/v2bs23p1ch12>
- Das, B. K., Jha, D. N., Sahu, S. K., Yadav, A. K., Raman, R. K., & Kartikeyan, M. (2023). Concept of simple correlation and regression. In *Concept building in fisheries data analysis* (pp. 149–173). Springer. https://doi.org/10.1007/978-981-19-4411-6_8
- Dash, B., Sharma, P., & Swayamsiddha, S. (2023). Organizational digital transformations and the importance of assessing theoretical frameworks such as TAM, TTF, and UTAUT: A review. *International Journal of Advanced Computer Science and Applications*, 14(2), 106–116. <https://doi.org/10.14569/IJACSA.2023.0140201>

- Dash, M. K., Sahu, M. K., Bhattacharyya, J., & Sakshi, S. (2023). *Customer-centricity in organized retailing: A guide to the basis of winning strategies*. Springer Nature. <https://doi.org/10.1007/978-981-19-3593-0>
- Davenport, T. H., & Westerman, G. (2018, March). Why so many high-profile digital transformations fail. *Harvard Business Review*. <https://hbr.org/2018/03/why-so-many-high-profile-digital-transformations-fail>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- de Andrés, P., Gimeno, R., & Mateos de Cabo, R. (2020). The gender gap in bank credit access. *Journal of Corporate Finance*, 65, Article 101782. <https://doi.org/10.1016/j.jcorpfin.2020.101782>
- Denieffe, S. (2020). Commentary: Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 662–663. <https://doi.org/10.1177/1744987120928156>
- Denison, D. R., & Mishra, A. K. (1995). Toward a theory of organizational culture and effectiveness. *Organization Science*, 6(2), 204–223. <https://doi.org/10.1287/orsc.6.2.204>
- Denny, E., & Weckesser, A. (2022). How to do qualitative research? *BJOG: An International Journal of Obstetrics & Gynaecology*, 129(9), 1166–1167. <https://doi.org/10.1111/1471-0528.17150>
- Derbali, A. (2021). Determinants of the performance of Moroccan banks. *Journal of Business and Socio-economic Development*, 1*(1), 102–117. <https://doi.org/10.1108/JBSED-01-2021-0003>

- Dethine, B., Enjolras, M., & Monticolo, D. (2020). Digitalization and SMEs' export management: Impacts on resources and capabilities. *Technology Innovation Management Review*, 10(4), 36–46. <https://doi.org/10.22215/timreview/1347>
- Dev, S., & Sharma, S. (2021). Employee satisfaction and gender: A study of Indian banks. *International Journal of Service Science, Management, Engineering, and Technology*, 12(1), 1–16. <https://doi.org/10.4018/IJSSMET.2021010101>
- Dias, S., & Irawati, D. (2020). Implementation of the balanced scorecard approach in industries: A systematic literature review. *Indonesian Journal of Industrial Engineering & Management*, 1(2), 67–76. <https://doi.org/10.22441/ijiem.v1i2.1016>
- Diener, F., & Špaček, M. (2021). Digital transformation in banking: A managerial perspective on barriers to change. *Sustainability*, 13(4), 2032. <https://doi.org/10.3390/su13042032>
- Do, T. D., Pham, H. A. T., Thalassinou, E. I., & Le, H. A. (2022). The impact of digital transformation on performance: Evidence from Vietnamese commercial banks. *Journal of Risk and Financial Management*, 15(1), 21. <https://doi.org/10.3390/jrfm15010021>
- Dodo, K. (2022). Revisiting selected work characteristics and employee performance: Evidence from banking sector. *Journal of Development and Social Sciences*, 3(3), 324–334. [https://doi.org/10.47205/jdss.2022\(3-iii\)28](https://doi.org/10.47205/jdss.2022(3-iii)28)
- Dougherty, M. V. (2021). The use of confidentiality and anonymity protections as a cover for fraudulent fieldwork data. *Nursing Ethics*, 28(4), 480–500. <https://doi.org/10.1177/17470161211018257>
- Doval, E. (2019). Organizational performance by the process of knowledge creation. *Journal of Knowledge Management*, 23(1), 2–20. <https://doi.org/10.1108/JKM-05-2018-0255>

- Dragan, I.-M., & Isaic-Maniu, A. (2022). An original solution for completing research through snowball sampling—Handicapping method. *Advances in Applied Sociology*, 12(10), 729–746. <https://doi.org/10.4236/aasoci.2022.1211052>
- Dudkowski, R. (2021). Objectives of the study. In *Managing value co-creation in university-industry partnerships* (pp. 61–63). Springer. https://doi.org/10.1007/978-3-030-60477-6_3
- Duerr, S., Holotiuk, F., Wagner, H. T., Beimborn, D., & Weitzel, T. (2018). *What is digital organizational culture? Insights from exploratory case studies* [Paper presentation]. The 51st Hawaii International Conference on System Sciences, Waikoloa, HI, United States. <http://hdl.handle.net/10125/50529>
- Dwivedi, D. N., Mahanty, G., & Dwivedi, V. K. (2024). Innovative marketing in banking. In *Advancing the digital service economy: Transformative developments and trends* (pp. 300–320). IGI Global. <https://doi.org/10.4018/979-8-3693-3172-9.ch020>
- Dzingirai, M. (2021). Demystifying corporate restructuring strategy through digital transformation: Lessons learned from the banking sector of Zimbabwe. In K. Sandhu (Ed.), *Emerging challenges, solutions, and best practices for digital enterprise transformation* (pp. 164–181). IGI Global. <https://doi.org/10.4018/978-1-7998-8587-0.ch009>
- Ebidor, L., & Ikhide, I. G. (2024). Literature review in scientific research: An overview. *East African Journal of Education Studies*, 7(2), 179–186. <https://doi.org/10.37284/eajes.7.2.1909>
- Egodawe, M., Sedera, D., & Bui, V. X. (2022). A systematic review of digital transformation literature (2013-2021) and the development of an overarching apriori model to guide future

- research. *Australasian Conference on Information Systems 2022*. <https://doi.org/10.48550/arXiv.2212.03867>
- Einhorn, M., & Löffler, M. (2021). Transformation of customer insights. In *The machine age of customer insight* (pp. 5–18). Emerald Publishing. <https://doi.org/10.1108/978-1-83909-694-520211002>
- Ekinci, R. (2021). The impact of digitalization on financial sector performance. In S. Bozkuş Kahyaoğlu (Ed.), *The impact of artificial intelligence on governance, economics and finance, Volume 1* (pp. 1220–1233). Springer. https://doi.org/10.1007/978-981-33-6811-8_6
- El-Den, S., Schneider, C. R., Mirzaei, A., & Carter, S. R. (2020). How to measure a latent construct: Psychometric principles for the development and validation of measurement instruments. *International Journal of Pharmacy Practice*, 28(4), 326–336. <https://doi.org/10.1111/ijpp.12600>
- Elia, S., Giuffrida, M., Mariani, M. M., & Bresciani, S. (2021). Resources and digital export: An RBV perspective on the role of digital technologies and capabilities in cross-border e-commerce. *Journal of Business Research*, 132, 158–169. <https://doi.org/10.1016/j.jbusres.2021.04.010>
- Ellström, D., Holtström, J., Berg, E., & Josefsson, C. (2022). Dynamic capabilities for digital transformation. *Journal of Strategy and Management*, 15(2), 272–286. <https://doi.org/10.1108/JSMA-04-2021-0089>
- Emily, M., Godfrey, M. S., Schwartz, M. K. D., Stukovsky, K. D., Woodward, D., Magaret, A., & Aitken, M. (2023). Web-based survey piloting process as a model for developing and

- testing past contraceptive use and pregnancy history: Cystic fibrosis case study. *JMIR Formative Research*, 7, Article e46395. <https://doi.org/10.2196/46395>
- Emina, S., Dijana, A., Aleksandra, P., Alden, P., & Maja, S. (2022). Mixed methodology of scientific research in healthcare. *Acta Informatica Medica*, 30(1), 57–60. <https://doi.org/10.5455/aim.2022.30.57-60>
- Enoruwa, O., Uchechukwu, J., Onwumere, J., Ibunor, A. E., Ehigie, H. A., & Ezuem, D. M. (2023). Impact of technological innovations on bank performance in selected West African countries (1997-2020). *International Journal of Professional Business Review*, 8(8), Article e02770. <https://doi.org/10.26668/businessreview/2023.v8i8.2270>
- Eory, L. (2021). Breaking down silos: A journey from functional distance to collaborative accountability. *Journal of Supply Chain Management, Logistics and Procurement*, 4(1), 37–45. <https://doi.org/10.69554/CWZH7843>
- Erkmen, T., Günsel, A., & Altındağ, E. (2020). The role of innovative climate in the relationship between sustainable IT capability and firm performance. *Sustainability*, 12(10), Article 4058. <https://doi.org/10.3390/su12104058>
- European Commission. (2021). *Defining artificial intelligence: A guide for policy-makers*. Publications Office of the European Union. <https://doi.org/10.2760/049115>
- Evers, A. W. M. (2022). Questionnaire use depends on the study goal, target group and phase of the condition. *British Journal of Dermatology*, 186(3), 395–396. <https://doi.org/10.1111/bjd.20948>
- Fernandez-Vidal, J., Perotti, F. A., Gonzalez, R., & Gasco, J. (2022). Managing digital transformation: The view from the top. *Journal of Business Research*, 152, 29–41. <https://doi.org/10.1016/j.jbusres.2022.07.020>

- Ferraris, A., Mazzoleni, A., Devalle, A., & Couturier, J. (2019). Big data analytics capabilities and knowledge management: Impact on firm performance. *Management Decision*, 57(8), 1923–1936. <https://doi.org/10.1108/MD-07-2018-0825>
- Franzen, S. (2021). Sunshine laws and the smokescreen of confidentiality. In *University responsibility for the adjudication of research misconduct: The science bubble* (pp. 10–20). Springer. https://doi.org/10.1007/978-3-030-68063-3_10
- Frederica, D., & Murwaningsari, E. (2021). The effect of the use of artificial intelligence and operational risk management on banking performance with the implementation of regulation as a moderation variable. *DeGRES*, 20(1), 146–158. <https://doi.org/10.1877/degres.v20i1.50>
- Furr, N., Ozcan, P., & Eisenhardt, K. M. (2022). What is digital transformation? Core tensions facing established companies on the global stage. *Global Strategy Journal*, 12(4), 595–618. <https://doi.org/10.1002/gsj.1442>
- Furusa, S. S., Musungwini, S., Gavai, P. V., & Maseko, M. (2022). A strategy for the digitalization of marginalized communities. In M. Zhou, G. Mahlangu, & C. Matsika (Eds.), *Digital transformation for promoting inclusiveness in marginalized communities* (pp. 237–259). IGI Global. <https://doi.org/10.4018/978-1-6684-3901-2.ch012>
- García-Peñalvo, F. J. (2021). Avoiding the dark side of digital transformation in teaching: An institutional reference framework for eLearning in higher education. *Sustainability*, 13(4), Article 2023. <https://doi.org/10.3390/su13042023>
- George, A. S., & George, A. H. (2023). A review of ChatGPT AI's impact on several business sectors. *Partners Universal International Innovation Journal*, 1(1), 9–23. <https://doi.org/10.5281/zenodo.7644359>

- Geyda, A. S. (2023). Big data analytics for anti-money laundering compliance in the banking industry. *Highlights in Science, Engineering and Technology*, 49, 151–157. <https://doi.org/10.54097/hset.v49i.8522>
- Ghafoori, A., Gupta, M., Merhi, M. I., Gupta, S., & Shore, A. P. (2023). Toward the role of organizational culture in data-driven digital transformation. *International Journal of Production Economics*, 271, Article 109205. <https://doi.org/10.1016/j.ijpe.2024.109205>
- Ghosh, S., Hughes, M., Hodgkinson, I., & Hughes, P. (2022). Digital transformation of industrial businesses: A dynamic capability approach. *Technovation*, 113, Article 102414. <https://doi.org/10.1016/j.technovation.2021.102414>
- Giannakos, M. N., Mikalef, P., & Pappas, I. O. (2021). Systematic literature review of e-learning capabilities to enhance organizational learning. *Information Systems Frontiers*, 24(3), 619–635. <https://doi.org/10.1007/s10796-020-10097-2>
- Giebe, C., Zwerenz, D., & Hammerström, L. (2023). Big data analytics as an elementary customer loyalty instrument for German banks – an empirical approach from a banker’s perspective. *Financial Markets, Institutions and Risks*, 7(1), 96–108. [https://doi.org/10.21272/fmir.7\(1\).96-108.2023](https://doi.org/10.21272/fmir.7(1).96-108.2023)
- Gkrimpizi, T., & Peristeras, V. (2022). Barriers to digital transformation in higher education institutions. In *Proceedings of the 15th International Conference on Theory and Practice of Electronic Governance* (pp. 154–160). <https://doi.org/10.1145/3560107.3560135>
- Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2023). Classification of barriers to digital transformation in higher education institutions: Systematic literature review. *Education Sciences*, 13(7), Article 746. <https://doi.org/10.3390/educsci13070746>

- Gökalp, E., & Martinez, V. (2022). Digital transformation maturity assessment: Development of the digital transformation capability maturity model. *International Journal of Production Research*, 60(20), 6282–6302. <https://doi.org/10.1080/00207543.2021.1991020>
- Goldfarb, A., & Tucker, C. (2019). Digital economics. *Journal of Economic Literature*, 57(1), 3–43. <https://doi.org/10.1257/jel.20171452>
- Gondo, T. C., & Suwaryono, I. L. (2024). Assessing the impact of digital transformation on public service delivery in Zimbabwe. *International Journal for Multidisciplinary Research*, 6(3). <https://doi.org/10.36948/ijfmr.2024.v06i03.20757>
- Gong, C., & Ribiere, V. (2020). Developing a unified definition of digital transformation. *Technovation*, 102, Article 102217. <https://doi.org/10.1016/j.technovation.2020.102217>
- Grimm, P. E. (2010). Pretesting a questionnaire. In *Wiley international encyclopedia of marketing*. John Wiley & Sons. <https://doi.org/10.1002/9781444316568.wiem02051>
- Grover, V. (2022). Digital agility: Responding to digital opportunities. *European Journal of Information Systems*, 31(6), 709–715. <https://doi.org/10.1080/0960085X.2022.2096492>
- Gržeta, I., Žiković, S., & Tomas Žiković, I. (2023). Size matters: Analyzing bank profitability and efficiency under the Basel III framework. *Financial Innovation*, 9, Article 43. <https://doi.org/10.1186/s40854-022-00412-y>
- Gun, L., Imamoglu, S. Z., Turkcan, H., & Ince, H. (2024). Effect of digital transformation on firm performance in the uncertain environment: Transformational leadership and employee self-efficacy as antecedents of digital transformation. *Sustainability*, 16(3), Article 1200. <https://doi.org/10.3390/su16031200>

- Gunzler, D. D., Perzynski, A. T., & Carle, A. C. (2021). *Structural equation modeling for health and medicine*. Chapman and Hall/CRC. <https://doi.org/10.1201/9780203701133>
- Guo, L., & Xu, L. (2021). The effects of digital transformation on firm performance: Evidence from China's manufacturing sector. *Sustainability*, *13*(22), Article 12844. <https://doi.org/10.3390/su132212844>
- Gupta, D., & Kulkarni, P. (2023). Internet of Things (IoT) driven digital transformation in BFSI sector. In *2023 Somaiya International Conference on Technology and Information Management (SICTIM)* (pp. 1–6). IEEE. <https://doi.org/10.1109/SICTIM56495.2023.10104797>
- Gupta, H. (2020). A detailed analysis of probability & non-probability sampling techniques for business research. *International Journal of Advanced Science and Technology*, *29*(4), 1107–1115. <https://serisc.org/journals/index.php/IJAST/article/view/6635>
- Gupta, T., Gupta, N., Agrawal, A., Agrawal, A., & Kansal, K. (2019). Role of big data analytics in banking. In *2019 7th International Conference on Cloud Computing, Data Science & Engineering (Confluence)* (pp. 256–260). IEEE. <https://doi.org/10.1109/IC3I46837.2019.9055616>
- Gurbaxani, V., & Dunkle, D. (2019). Gearing up for successful digital transformation. *MIS Quarterly Executive*, *18*(3), 209–220. <https://aisel.aisnet.org/misqe/vol18/iss3/6>
- Hadler, M., Klösch, B., Schwarzinger, S., Schweighart, M., Wardana, R., & Bird, D. N. (2022). The development of the questionnaire. In *Surveying the migrant population: Consideration of linguistic and cultural issues* (pp. 79–95). Springer. https://doi.org/10.1007/978-3-030-85796-7_4

- Haffke, I., Kalgovas, B., & Benlian, A. (2017). The transformative role of bimodal IT in an era of digital business. In *Proceedings of the 50th Hawaii International Conference on System Sciences* (pp. 5460–5469). <https://doi.org/10.24251/HICSS.2017.662>
- Hair, J. F., Jr., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Evaluation of reflective measurement models. In *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook* (pp. 75–90). Springer.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- HaiThanh, N., VanQuang, N., & Mai, N. T. (2021). Digital transformation: Opportunities and challenges for leaders in the emerging countries in response to Covid-19 pandemic. *Emerging Science Journal*, 5(Special Issue), 234–247. <https://doi.org/10.28991/esj-2021-SPER-03>
- Hakimi, T. I., Jaafar, J. A., & Aziz, N. A. A. (2023). What factors influence the usage of mobile banking among digital natives? *Journal of Financial Services Marketing*, 28(4), 763–778. <https://doi.org/10.1057/s41264-023-00212-0>
- Hakizimana, S., Wairimu, M. M. C., & Muathe, S. (2023). Digital banking transformation and performance—Where do we stand? *International Journal of Management Research and Emerging Sciences*, 13(1), 179–196. <https://doi.org/10.56536/ijmres.v13i1.404>
- Hamed, T. (2022). What are different research approaches? Comprehensive review of qualitative, quantitative, and mixed method research, their applications, types, and limitations. *Journal of Management Science & Engineering Research*, 5(1), 1–12. <https://doi.org/10.30564/jmsr.v5i1.4538>

- Hamida, A. (2018). Assessing the relationship between IT capabilities and performance: A study in banking industry of Bangladesh. *European Journal of Business and Management*, *10*(11), 45–56. <https://doi.org/10.7176/EJBM/10-11-06>
- Hang, N. T., Huy, D. T. N., Hien, D. T., & Nam, V. Q. (2021). IoT impacts and digital transformation at listed Vietnam banks. *Webology*, *18*(Special Issue), 773–784. <https://doi.org/10.14704/WEB/V18SI04/WEB18164>
- Hannant, M. (2019). Millennials in the workplace. In *Midnight's grandchildren* (pp. 80–105). Routledge. <https://doi.org/10.4324/9780429456701-6>
- Hariri, M. (2023). Digital transformation of Saudi Arabia's banking: A comparative study. *International Journal of Islamic Banking and Finance Research*, *11*(1), 35–49. <https://doi.org/10.46281/ijibfr.v11i1.2028>
- Harold, D. D., Marina, N., & Astakhova, L. V. (2020). Common method variance in international business research: A commentary. In L. Eden, B. Nielsen, & A. Verbeke (Eds.), *Research methods in international business* (pp. 487–502). Palgrave Macmillan.
- Harris, T., Limb, E. S., Hosking, F., Carey, I., DeWilde, S., Furness, C., Wahlich, C., Ahmad, S., Kerry, S., Whincup, P., Victor, C., Ussher, M., Iliffe, S., Fox-Rushby, J., Ibison, J., Woodcock, A., Davey, C., & Ekelund, U. (2019). Effect of pedometer-based walking interventions on long-term health outcomes: Prospective 4-year follow-up of two randomised controlled trials using routine primary care data. *PLOS Medicine*, *16*(6), Article e1002836. <https://doi.org/10.1371/journal.pmed.1002836>
- Haryanti, T., Rakhmawati, N. A., & Subriadi, A. P. (2023). A comparative analysis review of digital transformation stage in developing countries. *Journal of Industrial Engineering and Management*, *16*(1), Article 4576. <https://doi.org/10.3926/jiem.4576>

- Hasan, I., & İslatince, D. (2023). Digital transformation in the banking sector; An analysis of the evaluation of acceptance levels of bank employees. *International Journal of Business and Applied Social Science*, 9(3), 5–12. <https://doi.org/10.33642/ijbass.v9n3p5>
- Hashem, G. (2020). Organizational enablers of business process reengineering implementation: An empirical study on the service sector. *International Journal of Productivity and Performance Management*, 69(2), 321–343. <https://doi.org/10.1108/IJPPM-11-2018-0383>
- Hassel, M., & Satria, Y. (2023). Research design. In *Advances in knowledge acquisition, transfer and management* (pp. 82–95). IGI Global. <https://doi.org/10.4018/978-1-6684-6859-3.ch006>
- He, Z., Huang, H., Choi, H., & Bilgihan, A. (2021). Building organizational resilience with digital transformation. *Journal of Service Management*, 32(6), 185–215. <https://doi.org/10.1108/JOSM-06-2021-0216>
- He, Z., Huang, H., Choi, H., & Bilgihan, A. (2023). Building organizational resilience with digital transformation. *Journal of Service Management*, 34(1), 147–171. <https://doi.org/10.1108/JOSM-06-2021-0216>
- Henfridsson, O., Mathiassen, L., & Svahn, F. (2018). Managing technological change in the digital age: The role of architectural frames. *Journal of Information Technology*, 33(3), 196–209. <https://doi.org/10.1057/s41265-017-0045-4>
- Hensen, B., Mackworth-Young, C. R. S., Simwinga, M., Abdelmagid, N., Banda, J., Mavodza, C., Doyle, A. M., Bonell, C., & Weiss, H. A. (2021). Remote data collection for public health research in a COVID-19 era: Ethical implications, challenges and opportunities. *Health Policy and Planning*, 36(3), 360–368. <https://doi.org/10.1093/heapol/czaa158>

- Hess, T., Matt, C., Benlian, A., & Wiesböck, F. (2016). Options for formulating a digital transformation strategy. *MIS Quarterly Executive*, 15(2), 123–139. <https://doi.org/10.4324/9780429286797-7>
- Hie, B. P. (2019). Impact of transforming organizational culture and digital transformation governance toward digital maturity in Indonesian banks. *International Review of Management and Marketing*, 9(6), 51–57. <https://doi.org/10.32479/irmm.8785>
- Hirschauer, N., Grüner, S., & Mußhoff, O. (2022). The basics of statistical inference: Simple random sampling. In *Fundamentals of statistical inference* (pp. 17–31). Springer. https://doi.org/10.1007/978-3-030-99091-6_3
- Hjorthaug Urstad, K., Andenæs, R., Klopstad Wahl, A., Gravdal Kvarme, L., Helseth, S., & Moum, T. (2020). The Health Literacy Questionnaire: Initial validity testing in a Norwegian sample. *Journal of Nursing Measurement*, 28(3), E168–E181. <https://doi.org/10.3928/24748307-20200903-01>
- Hoang, T. L., & Ta, V. C. (2022). Effect of cluster-based sampling on the over-smoothing issue in graph neural network. In *2022 14th International Conference on Knowledge and Systems Engineering (KSE)* (pp. 1–6). IEEE. <https://doi.org/10.1109/KSE56063.2022.9953797>
- Hokkanen, H., Walker, C., & Donnelly, A. (2021). Business model opportunities in brick and mortar retailing through digitalization. *Journal of Business Models*, 8(3), 33–61. <https://doi.org/10.5278/jbm.v8i3.5803>
- Hokonya, S. (2024). Digital transformation and customer satisfaction: Lessons from Standard Chartered Bank of Zimbabwe. *Texila International Journal of Management*, 10(1), 85–94. <https://doi.org/10.21522/TIJMG.2015.10.01.Art009>

- Howell, G. (2023). Persons and groups: Protection of research participants with vulnerabilities as a process. In *Vulnerability in research* (pp. 49–63). Springer. https://doi.org/10.1007/978-3-031-12692-5_4
- Huang, H. (2022). Reflections from research practice: Realism and its reality, coming to know this, and working out its mechanisms of socio-material change. *Exchanges: The Interdisciplinary Research Journal*, *10*(1), 57–93. <https://doi.org/10.31273/eirj.v10i1.815>
- Huang, K., & Yang, C. (2019). Banking innovation through data science. *International Journal of Innovation and Technology Management*, *16*(2), Article 1940008. <https://doi.org/10.1142/S0219877019400082>
- Huang, Z. (2023). Research on the impact of digital transformation of commercial banks on profitability. *SHS Web of Conferences*, *163*, Article 02015. <https://doi.org/10.1051/shsconf/202316302015>
- Hughes, J. P., & Mester, L. J. (2014). Measuring the performance of banks: Theory, practice, evidence, and some policy implications. In A. N. Berger, P. Molyneux, & J. O. S. Wilson (Eds.), *The Oxford handbook of banking* (2nd ed., pp. 245–278). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199688500.013.0010>
- Hvolby, H.-H., & Thorstenson, A. (2001). Indicators for performance measurement in small- and medium-sized enterprises. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture*, *215*(8), 1143–1146. <https://doi.org/10.1243/0954405011518926>
- Ikart, E. M. (2019). Survey questionnaire survey pretesting method: An evaluation of survey questionnaire via expert reviews technique. *Asian Journal of Social Science Studies*, *4*(2), 1–17. <https://doi.org/10.20849/ajsss.v4i2.565>

- Iluba, E., & Phiri, J. (2021). The FinTech evolution and its effect on traditional banking in Africa—A case of Zambia. *Open Journal of Business and Management*, 9(2), 566–582. <https://doi.org/10.4236/ojbm.2021.92043>
- Imran, F., Shahzad, K., Butt, A., & Kantola, J. (2021). Digital transformation of industrial organizations: Toward an integrated framework. *Journal of Change Management*, 21(4), 451–479. <https://doi.org/10.1080/14697017.2021.1929406>
- Indrasari, M., & Pamuji, E. (2023). Enhancing employee performance through strategic artificial intelligence initiatives. *Journal of Business Management and Economic Development*, 2(1), 383–396. <https://doi.org/10.59653/jbmed.v2i01.548>
- International Monetary Fund. (2022). *Zimbabwe: Technical Assistance Report—Financial Sector Stability Review Consolidated Supervision* (IMF Staff Country Reports No. 2022/379). <https://doi.org/10.5089/9798400227110.002>
- Irwan, S. (2023). Human resource development strategies to achieve digital transformation in businesses. *Journal of Contemporary Administration and Management*, 1(3), 126–134. <https://doi.org/10.61100/adman.v1i3.66>
- Islam, M. R. (2022). Pragmatism. In M. R. Islam, N. A. Khan, & R. Baikady (Eds.), *Principles of social research methodology* (pp. 117–127). Springer. https://doi.org/10.1007/978-981-19-5441-2_9
- İslatince, H. (2022). Digital transformation and banking sector workforce: An evaluation study. *International Journal of Scientific Research and Management*, 10(05), 3555–3563. <https://doi.org/10.18535/ijssrm/v10i5.em11>
- Ismail, A., Hidajat, T., Dora, Y. M., Prasatia, F. E., & Pranadani, A. (2023). *Leading the digital transformation: Evidence from Indonesia*. Asadel Publisher.

- Iwaniec, J. (2019). Questionnaires: Implications for effective implementation. In *The Routledge handbook of research methods in applied linguistics* (pp. 310–322). Routledge. <https://doi.org/10.4324/9780367824471-28>
- Jafri, F. (2022). Data cleansing. In *Data science and analytics* (pp. 123–145). Apress. https://doi.org/10.1007/978-1-4842-8578-7_10
- Jahan, N., Ali, M. J., & Al Asheq, A. (2020). Examining the key determinants of customer satisfaction Internet banking services in Bangladesh. *Academy of Strategic Management Journal*, 19(1), 1–6. <https://11nq.com/G4gs3>
- Jaloliddin, R. (2023). Digitalization in global trade: Opportunities and challenges for investment. *Global Trade and Customs Journal*, 18(10), 461–468. <https://doi.org/10.54648/gtcj2023043>
- Jayashree, R., & Jayakani, S. (2023). Adaptive strategies for digital transformation: A comparative study of banking innovations and roadmap for banks in India. *Indian Scientific Journal of Research in Engineering and Management*, 7(9), 1–11. <https://doi.org/10.55041/IJSREM25884>
- Jedynak, M., Czakon, W., Kuźniarska, A., & Mania, K. (2021). Digital transformation of organizations: What do we know and where to go next? *Journal of Organizational Change Management*, 34(3), 629–652. <https://doi.org/10.1108/JOCM-10-2020-0336>
- Jena, L. K. (2022). Does workplace spirituality lead to raising employee performance? The role of citizenship behavior and emotional intelligence. *International Journal of Organizational Analysis*, 30(6), 1309–1334. <https://doi.org/10.1108/IJOA-06-2020-2279>

- Jhangiani, R. S., Chiang, I.-C. A., Cuttler, C., & Leighton, D. C. (2019). Developing a hypothesis. In *Research methods in psychology* (4th ed.). Kwantlen Polytechnic University. <https://kpu.pressbooks.pub/psychmethods4e/>
- Jiatong, Y., & Taesoo, M. (2020). Impact of digital strategic orientation on organization performance through digital transformation capability. *ICIC Express Letters, Part B: Applications*, *12*(9), 847–856. <https://doi.org/10.24507/icicelb.12.09.847>
- Jihane, T., & Aziz, M. (2022). Banks and FinTech relationship in a digital transformation context. *European Scientific Journal*, *18*(12), 106. <https://doi.org/10.19044/esj.2022.v18n12p106>
- Joensuu-Salo, S., & Matalamäki, M. (2023). The impact of digital capability on firm performance and growth in incumbent SMEs. *Journal of Enterprising Culture*, *31*(1), 83–105. <https://doi.org/10.1142/S0218495823500073>
- Jones, M. D., Hutcheson, S., & Camba, J. D. (2021). Past, present, and future barriers to digital transformation in manufacturing: A review. *Journal of Manufacturing Systems*, *60*, 936–948. <https://doi.org/10.1016/j.jmsy.2021.03.005>
- Josefeena, B., & Marudhar, M. (2018). Reliability & validity of the research. *International Journal of Nursing Education*, *10*(1), 23–26. <https://doi.org/10.5958/0974-9357.2018.00015.9>
- Jotwani, R., Pryor, K. O., & Goldstein, P. A. (2024). The ethics of research. In *Professional, ethical, legal, and educational lessons in medicine: A problem-based learning approach* (pp. 250–256). Oxford University Press. <https://doi.org/10.1093/med/9780197655979.003.0044>

- Jumani, A., Yudha, P., & Zulfiqar, A. (2024). Linking digital capability to small business performance: The mediating role of digital business transformation. *Cogent Business & Management*, *11*(1), Article 2342486. <https://doi.org/10.1080/23311975.2024.2342486>
- Kadur, P., & Rajshekar, S. (2022). Digital transformation and banking sector workforce: An evaluation study. *International Journal of Scientific Research and Management*, *10*(5), 3555–3563. <https://doi.org/10.18535/ijstrm/v10i5.em11>
- Kalejaiye, P. O. (2019). Influence of nature of employment on job satisfaction and commitment in deposit money banks in Lagos State, Nigeria. *Journal of Social Sciences Research*, *5*(12), 1787–1795. <https://doi.org/10.32861/jssr.512.1787.1795>
- Kalton, G. (2023). Probability vs. nonprobability sampling: From the birth of survey sampling to the present day. *Statistics in Transition New Series*, *24*(3), 1–22. <https://doi.org/10.59170/stattrans-2023-024>
- Kamenda, M., & Qutieshat, A. (2021). Uses of the outcomes of research in business management and profitability. *Open Journal of Business and Management*, *9*(6), 2975–2986. <https://doi.org/10.4236/ojbm.2021.96164>
- Kamyalile, S., & Mpundu, M. (2024). Benefits and challenges of digital transformation technologies in the financial services sector: A case study of two commercial banks in Zambia. *International Journal of Management and Economics Invention*, *10*(7), 3631–3641. <https://doi.org/10.47191/ijmei/v10i7.10>
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2017). Achieving digital maturity: Adapting your company to a changing world. *MIT Sloan Management Review*. <https://sloanreview.mit.edu/projects/achieving-digital-maturity/>

- Kaondera, P. R., Chikazhe, L., Munyimi, T. F., & Nyagadza, B. (2023). Buttressing customer relationship management through digital transformation: Perspectives from Zimbabwe's commercial banks. *Cogent Social Sciences*, 9(1), Article 2191432. <https://doi.org/10.1080/23311886.2023.2191432>
- Karaboğa, T., & Şehitoğlu, Y. (2024). Psychological impacts of digitalization on workers: A bibliometric investigation. *Journal of Global Strategic Management*, 18(1), 48–62. <https://doi.org/10.20460/jgsm.2024.338>
- Karim, F. (2023). Validating the constructs of employees' competence model through confirmatory factor analysis: Evidence from Nigeria. *International Journal of Economics*, 2(1), 1–13. <https://doi.org/10.55299/ijec.v2i1.396>
- Karmakar, B., Small, D. S., & Rosenbaum, P. R. (2019). Using approximation algorithms to build evidence factors and related designs for observational studies. *Journal of Computational and Graphical Statistics*, 28(3), 698–709. <https://doi.org/10.1080/10618600.2019.1584900>
- Kastelli, I., Dimas, P., Stamopoulos, D., & Tsakanikas, A. (2022). Linking digital capacity to innovation performance: The mediating role of absorptive capacity. *Journal of the Knowledge Economy*. <https://doi.org/10.1007/s13132-022-01092-w>
- Katke, K. (2021). Behavioral challenges of technology adoption among bank employees: A TAM perspective. *Journal of Contemporary Issues in Business and Government*, 27(3), 193–196. <https://doi.org/10.47750/cibg.2021.27.03.027>
- Katuka, B., Mudzingiri, C., & Vengesai, C. (2023). The effects of non-performing loans on bank stability and economic performance in Zimbabwe. *Asian Economic and Financial Review*, 13(6), 418–433. <https://doi.org/10.55493/5002.v13i6.4794>

- Kaur, V. (2019). Summary of findings, conclusions and suggestions. In *Knowledge-based dynamic capabilities: The road to innovation and competitive advantage* (pp. 209–226). Springer. https://doi.org/10.1007/978-3-319-91884-3_8
- Kazei, V., & Sengupta, M. (2022). Introduction to this special section: Digital transformation. *The Leading Edge*, 41(9), 590. <https://doi.org/10.1190/tle41090590.1>
- Kedziora, D., & Hyrynsalmi, S. (2023). Turning robotic process automation onto intelligent automation with machine learning. In *Proceedings of the 11th International Conference on Communities and Technologies* (pp. 251–255). <https://doi.org/10.1145/3593743.3593746>
- Kemal, Ö. (2020). Power analysis and sample size, when and why? *Turkish Archives of Otorhinolaryngology*, 58(1), 3–4. <https://doi.org/10.5152/tao.2020.0330>
- Kenaphoom, S. (2021). Introduction to research philosophy. *Journal of Anthropological and Archaeological Sciences*, 5(4), 657–660. <https://doi.org/10.32474/JAAS.2021.05.000217>
- Kestenbaum, B. (2019). Population, exposure, and outcome. In *Epidemiology and biostatistics: An introduction to clinical research* (pp. 25–55). Springer. https://doi.org/10.1007/978-3-319-97433-0_2
- Kettinger, W. J., Teng, J. T. C., & Guha, S. (1997). Business process change: A study of methodologies, techniques, and tools. *MIS Quarterly*, 21(1), 55–80. <https://doi.org/10.2307/249742>
- Khadragy, S., Chupradit, S., Ku, K. Y., Nassani, A. A., & Haffar, M. (2022). Impact of employees' workplace environment on employees' performance: A multi-mediation model. *Frontiers in Public Health*, 10, Article 890400. <https://doi.org/10.3389/fpubh.2022.890400>

- Khams, A. A. (2022). The impact of digital transformation on staffing strategy in banking sector: A case study of Egypt. *Review of International Comparative Management*, 23(3), 454–474. <https://doi.org/10.24818/RMCI.2022.3.454>
- Khan, M. T., Khan, T. I., & Khan, S. (2020). Innovation & its diffusion in business: Concept, stages & procedural practices. *Sir Syed Journal of Education & Social Research*, 3(4), 174–186. [https://doi.org/10.36902/sjesr-vol3-iss4-2020\(174-186\)](https://doi.org/10.36902/sjesr-vol3-iss4-2020(174-186))
- Khan, N. (2020). Critical review of sampling techniques in the research process in the world. *SSRN*. <https://doi.org/10.2139/ssrn.3572336>
- Khan, N. A., Mihoci, A., Michalk, S., Sarachuk, K., & Javed, H. A. (2022). Employee performance measures appraised by training and labor market: Evidence from the banking sector of Germany. *Administrative Sciences*, 12(4), Article 143. <https://doi.org/10.3390/admsci12040143>
- Khanboubi, F., & Boulmakoul, A. (2020). Risk-driven analytics for banking IoT strategy. In N. Bouhmala, A. B. H. Adam, & O. K. Hussain (Eds.), *Internet of things, smart computing and technology: A roadmap ahead* (pp. 189–215). Springer. https://doi.org/10.1007/978-3-030-39047-1_9
- Khin, S., & Ho, T. C. (2019). Digital technology, digital capability and organizational performance: A mediating role of digital innovation. *International Journal of Innovation Science*, 11(2), 177–195. <https://doi.org/10.1108/IJIS-08-2018-0083>
- Kilic, S. (2016). Cronbach's alpha reliability coefficient. *Journal of Mood Disorders*, 6(1), 47–48. <https://doi.org/10.5455/jmood.20160307122823>

- Kim, J., Kim, D. H., & Kwak, S. G. (2024). Comprehensive guidelines for appropriate statistical analysis methods in research. *Korean Journal of Anesthesiology*, 77(5), 503–517. <https://doi.org/10.4097/kja.24016>
- Kimathi, D. K., David, N. P., Kariuki, A., & Mohammed, S. (2024). Uptake of digital organizational innovations on financial performance of commercial banks in Kenya. *International Journal of Economics, Business and Management Research*, 8(7), 248–263. <https://doi.org/10.51505/ijebmr.2024.8716>
- Kimberlin, C. L., & Winterstein, A. G. (2008). Validity and reliability of measurement instruments used in research. *American Journal of Health-System Pharmacy*, 65*(23), 2276–2284. <https://doi.org/10.2146/ajhp070364>
- Kircher, R. (2022). Questionnaires to elicit quantitative data. In L. T. B. Jackson & D. R. Meiring (Eds.), *Research methods in applied linguistics* (pp. 245–266). Cambridge University Press. <https://doi.org/10.1017/9781108867788.012>
- Kitsios, F., & Kamariotou, M. (2021). Artificial intelligence and business strategy towards digital transformation: A research agenda. *Sustainability*, 13(4), Article 2025. <https://doi.org/10.3390/su13042025>
- Kitsios, F., Giatsidis, I., & Kamariotou, M. (2021). Digital transformation and strategy in the banking sector: Evaluating the acceptance rate of e-services. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(3), Article 204. <https://doi.org/10.3390/joitmc7030204>
- Kivunja, C. (2018). Distinguishing between theory, theoretical framework, and conceptual framework: A systematic review of lessons from the field. *International Journal of Higher Education*, 7(6), 44–53. <https://doi.org/10.5430/ijhe.v7n6p44>

- Kline, R. B. (2023). *Principles and practice of structural equation modeling* (5th ed.). Guilford Press.
- Kogabayev, T., & Maziliauskas, A. (2017). The definition and classification of innovation. *Holistica*, 8(1), 59–68. <https://doi.org/10.1515/hjbpa-2017-0005>
- Kohli, R., & Melville, N. P. (2019). Digital innovation: A review and synthesis. *Information Systems Journal*, 29(1), 200–223. <https://doi.org/10.1111/isj.12193>
- Kong, Y., & Masud, I. (2020). Service innovation, service delivery and customer satisfaction and loyalty in the banking sector of Ghana. *International Journal of Bank Marketing*, 38(7), 1583–1608. <https://doi.org/10.1108/IJBM-06-2018-0142>
- Königstorfer, F., & Thalmann, S. (2020). Applications of artificial intelligence in commercial banks – A research agenda for behavioral finance. *Journal of Behavioral and Experimental Finance*, 28, Article 100352. <https://doi.org/10.1016/j.jbef.2020.100352>
- Kontic, L., & Kontić, J. (2023). Strategic aspects of sustainability and digital transformation: A study in an international bank. *Bankarstvo*, 52(1), 48–73. <https://doi.org/10.5937/bankarstvo2301061K>
- Kovane, G. P., Nikoderm, V., & Khondowe, O. (2022). Informed consent in clinical trials. *South African Journal of Bioethics and Law*, 15(2), 48–53. <https://doi.org/10.7196/SAJBL.2022.v15i2.802>
- Krasonikolakis, I., Tsarbopoulos, M., & Eng, T.-Y. (2020). Are incumbent banks bygones in the face of digital transformation? *Journal of General Management*, 46(1), 60–69. <https://doi.org/10.1177/0306307020937883>

- Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital transformation: An overview of the current state of the art of research. *Sustainability*, *13*(4), Article 2002. <https://doi.org/10.3390/su13042002>
- Kraus, S., Schiavone, F., Pluzhnikova, A., & Invernizzi, A. C. (2021). Digital transformation in healthcare: Analyzing the current state-of-research. *Journal of Business Research*, *123*, 557–567. <https://doi.org/10.1016/j.jbusres.2020.10.030>
- Krechovská, M., & Procházková, P. T. (2022). The effect of working capital management on the profitability of Czech agri-food companies. *Journal of Business Economics and Management*, *23*(1), 160–176. <https://doi.org/10.3846/jbem.2022.16076>
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, *30*(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- Kriebel, J., & Debener, J. (2019). *The effect of digital transformation on bank performance* (SSRN Scholarly Paper 3461594). Social Science Research Network. <https://doi.org/10.2139/ssrn.3461594>
- Kröll, M., & Burova-Keßler, K. (2021). AI and learning in the context of digital transformation. In S. Nazir, T. Z. Ahram, & W. Karwowski (Eds.), *Advances in human factors in training, education, and learning sciences* (pp. 39–45). Springer. https://doi.org/10.1007/978-3-030-80000-0_5
- Kross, J., & Giust, A. (2019). Elements of research questions in relation to qualitative inquiry. *The Qualitative Report*, *24*(1), 24–30. <https://doi.org/10.46743/2160-3715/2019.3426>

- Kuckartz, U., & Rädiker, S. (2019). Adding variables and quantifying codes. In *Analyzing qualitative data with MAXQDA* (pp. 123–134). Springer. https://doi.org/10.1007/978-3-030-15671-8_10
- Kumar, D. (2020). Artificial intelligence empowering the future of digital transformation. *International Journal of Trend in Scientific Research and Development*, 4(3), 8–9. <https://doi.org/10.11648/j.ijtsrd.2020.4302>
- Kumar, J. (2024). The transformative role of mobile applications in digital banking: A comprehensive analysis of customer engagement and service evolution. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, 10(6), 1675–1684. <https://doi.org/10.32628/cseit241061210>
- Kumar, K. S. (2024). A study on the role of digital transformation in enhancing bank performance. *Indian Scientific Journal of Research in Engineering and Management*, 8(5). <https://doi.org/10.55041/IJSREM37288>
- Kumar, P., Bhamu, J., & Sangwan, K. S. (2021). Analysis of barriers to Industry 4.0 adoption in manufacturing organizations: An ISM approach. *Procedia CIRP*, 98, 85–90. <https://doi.org/10.1016/j.procir.2021.01.085>
- Kumar, R. M., & Sangtani, R. (2023). Digital innovation and transformation. *Journal of Artificial Intelligence, Machine Learning and Neural Network*, 3(1), 25–38. <https://doi.org/10.55529/jaimlnn.31.25.38>
- Kumar, R., & Singh, R. (2017). Age diversity in the workplace: A study on private sector banks employees. *International Journal of Research*, 5(8), 120–126. <https://doi.org/10.29121/granthaalayah.v5.i8.2017.2196>

- Kumaran, K., Zaini, B. M. I. M. I., Wong, C. Y., & Michelle, L. (2023). Banking on performance: Employee enhancement strategies in Malaysia's mergers and acquisitions landscape. *European Journal of Management and Marketing Studies*, 8(3), Article 1553. <https://doi.org/10.46827/ejmms.v8i3.1553>
- Kump, B., Engelmann, A., Kessler, A., & Schweiger, C. (2019). Toward a dynamic capabilities scale: Measuring organizational sensing, seizing, and transforming capacities. *Industrial and Corporate Change*, 28(5), 1149–1172. <https://doi.org/10.1093/icc/dty054>
- Kunicova, J., Silarszky, P., Koech, C., Chepkorir, K. S., Mutowa, G. T., Olafsen, E., Mawadza, C. M., Jongwe, T. R., Nagashima, Y., & Bvumbe, J. C. (2021). *Digital economy for Zimbabwe: Country diagnostic report*. World Bank Group. <https://documents.worldbank.org/curated/en/785441637739254996/Digital-Economy-for-Zimbabwe-Country-Diagnostic-Report>
- Kwok, C. S., Muntean, E. A., Mallen, C. D., & Borovac, J. A. (2022). Data collection theory in healthcare research: The minimum dataset in quantitative studies. *Clinics and Practice*, 12(6), 832–844. <https://doi.org/10.3390/clinpract12060088>
- Kyngäs, H., Kääriäinen, M., & Elo, S. (2020). The trustworthiness of content analysis. In H. Kyngäs, K. Mikkonen, & M. Kääriäinen (Eds.), *The application of content analysis in nursing science research* (pp. 41–48). Springer. https://doi.org/10.1007/978-3-030-30199-6_5
- Lafioune, N., Poirier, E. A., & St-Jacques, M. (2023). Managing urban infrastructure assets in the digital era: Challenges of municipal digital transformation. *Digital Transformation and Society*, 3(1), 3–22. <https://doi.org/10.1108/DTS-02-2023-0010>

- Lahiri, M., & Das, P. N. (2024). Analysis of innovation and technology in banking. *REST Journal on Banking, Accounting and Business*, 1(3), 45–67. <https://doi.org/10.46632/jbab/1/3/12>
- Lamm, K. W., Lamm, A. J., & Edgar, D. W. (2020). Scale development and validation: Methodology and recommendations. *Journal of International Agricultural and Extension Education*, 27(2), 24–35. <https://doi.org/10.5191/jiaee.2020.27224>
- Lanzolla, G., Lorenz, A., Miron-Spektor, E., Schilling, M., Solinas, G., & Tucci, C. L. (2020). Digital transformation: What is new if anything? Emerging patterns and management research. *Academy of Management Discoveries*, 6(3), 341–350. <https://doi.org/10.5465/amd.2020.0144>
- Latinovic, Z., & Chatterjee, S. C. (2022). Achieving the promise of AI and ML in delivering economic and relational customer value in B2B. *Journal of Business Research*, 144, 966–974. <https://doi.org/10.1016/j.jbusres.2022.01.052>
- Latpate, R., Kshirsagar, J., Gupta, V. K., & Chandra, G. (2021). *Advanced sampling methods*. Springer Nature.
- Laury, H. A., Matondang, N., & Sembiring, M. T. (2020). Balanced scorecard in the integration of corporate strategic planning and performance: A literature review. *IOP Conference Series: Materials Science and Engineering*, 801(1), Article 012135. <https://doi.org/10.1088/1757-899X/801/1/012135>
- Lee, H., & Lee, S. (2020). Creative industry digital transformation case study, market reorganization strategy and platform. *Journal of Digital Convergence*, 18(7), 177–188. <https://doi.org/10.14400/JDC.2020.18.7.177>

- Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, 61(1), 35–46. <https://doi.org/10.1016/j.bushor.2017.09.003>
- Leso, B. H., Cortimiglia, M. N., & Ghezzi, A. (2023). The contribution of organizational culture, structure, and leadership factors in the digital transformation of SMEs: A mixed-methods approach. *Cognition, Technology & Work*, 25(1), 151–179. <https://doi.org/10.1007/s10111-022-00721-3>
- Lethepa, A., Matemane, R., & Dhlembeu, N. (2020). Bankers and financial advisers in an emerging economy: Are they financially literate? *Banks and Bank Systems*, 15(2), 16–27. [https://doi.org/10.21511/bbs.15\(2\).2020.02](https://doi.org/10.21511/bbs.15(2).2020.02)
- Li, F. (2020). Leading digital transformation: Three emerging approaches for managing the transition. *International Journal of Operations & Production Management*, 40(6), 809–817. <https://doi.org/10.1108/IJOPM-04-2020-0202>
- Li, L., Chen, L., Yan, K., Xu, C., & Jiang, N. (2023). How does technological opportunism affect firm performance? The mediating role of resource orchestration. *Journal of Business Research*, 158, Article 114093. <https://doi.org/10.1016/j.jbusres.2023.114093>
- Li, S. (2024). *The influences of digital transformation of commercial banks on human resources demand* (SSRN Scholarly Paper 4695743). Social Science Research Network. <https://doi.org/10.2139/ssrn.4695743>
- Li, X., & Liang, L. (2020). Digital transformation in the banking sector: A comparative study of China and the United States. *Journal of Business Research*, 112, 105–115. <https://doi.org/10.1016/j.jbusres.2019.06.017>

- Lim, W. M. (2024). A typology of validity: Content, face, convergent, discriminant, nomological and predictive validity. *Journal of Trade Science*, 12(3), 155–179. <https://doi.org/10.1108/JTS-03-2024-0016>
- Lines, T., Burdick, C., Dewez, X., Aldridge, E., Neal-Williams, T., Walker, K., Akhlaghi, H., Paul, B., & Taylor, D. M. D. (2022). Nature and extent of selection bias resulting from convenience sampling in the emergency department. *Emergency Medicine Journal*, 39(4), 325–330. <https://doi.org/10.1136/emered-2021-211390>
- Lisa, S., Ibrahim, D. Y., & Borges, G. L. (2020). The success of startups through digital transformation. *International Journal of Open Information Technologies*, 8(5), 53–56. <http://injoit.org/index.php/j1/article/view/932>
- Lo, A. Y., Srikukenthiran, S., Miller, E. J., & Habib, K. N. (2020). Impact of multiple sample frames on data quality of household travel surveys: The case of the 2016 Transportation Tomorrow Survey. *Transportation Planning and Technology*, 43(6), 585–606. <https://doi.org/10.1080/03081060.2020.1780707>
- López, C. J., Cuba, M. B., Rosa, A. R. M. V., & Mitta, B. E. C. (2022). Relevance of statistical analysis in quantitative research. *Universidad, Ciencia y Tecnología*, 26(113), 49–56. <https://doi.org/10.47460/uct.v26i113.569>
- Lóska, G., & Uotila, J. (2023). Digital transformation in corporate banking: Toward a blended service model. *California Management Review*, 65(1), 74–92. <https://doi.org/10.1177/00081256231207429>
- Lugun, A. A. (2024). Impact of digitalisation on banking sector. *International Journal of Education Modern Management Applied Science & Social Science*, 6(3), 140–146. [https://doi.org/10.62823/ijemmass/6.3\(i\).6844](https://doi.org/10.62823/ijemmass/6.3(i).6844)

- Luo, J. (2023). Data-driven innovation: What is it? *IEEE Transactions on Engineering Management*, 70(2), 784–790. <https://doi.org/10.1109/TEM.2022.3145231>
- Ly, B. (2024). Transforming commitment into performance: A study of digital transformation in the Cambodian public sector amidst a pandemic. *Cogent Business & Management*, 11(1), Article 2333609. <https://doi.org/10.1080/23311975.2024.2333609>
- Ma, F., Khan, F., Khan, K. U., & XiangYun, S. (2021). Investigating the impact of information technology, absorptive capacity, and dynamic capabilities on firm performance: An empirical study. *SAGE Open*, 11(4). <https://doi.org/10.1177/21582440211061388>
- Madanayake, S., & Yapa, S. (2024). Factors influencing digital transformation success: A study on a Sri Lankan commercial bank. *SLIIT Business Review*, 3(1), 103–137. <https://doi.org/10.54389/ONHU3795>
- Mageswari, S. S., & Sasirekha, P. (2022). Digital banking: The new normal. *ECS Transactions*, 107(1), 12783–12788. <https://doi.org/10.1149/10701.12783ecst>
- Magnani, A., D'Angelo, G., Ferretti, S., & Marzolla, M. (2018). Anonymity and confidentiality in secure distributed simulation. In *Proceedings of the 2018 ACM SIGSIM Conference on Principles of Advanced Discrete Simulation* (pp. 135–138). <https://doi.org/10.1145/3200921.3200933>
- Maha, S., Cunningham, J., Connon, N., & Pirie, E. (2024). The impact of rapid digital transformation on employee empowerment: Evidence from the UAE banking sector. *International Journal of Business and Applied Social Science*, 10(1), 18–28. <https://doi.org/10.33642/ijbass.v10n1p2>
- Mahmood, F., Abdul, Z. K., & Mohammad, B. K. (2019). Digital organizational transformation issues, challenges and impact: A systematic literature review of a decade. *Abasyn*

- University Journal of Social Sciences*, 12(2), 231–249. <https://doi.org/10.34091/AJSS.12.2.03>
- Majukwa, D., Fan, S. K., & Dwyer, R. J. (2020). Impact of sustainability strategies on small-and medium-sized enterprises in Zimbabwe. *World Journal of Entrepreneurship, Management and Sustainable Development*, 16(2), 149–163. <https://doi.org/10.1108/WJEMSD-10-2019-0079>
- Makini, S. O. (2024). Relationship between financial innovations and financial performance of commercial banks in Kenya. *International Journal of Economics, Commerce and Management*, 12(6), 164–171. <https://ijecm.co.uk/wp-content/uploads/2024/06/12612.pdf>
- Makota, J. (2023). Determining the determinants of customer satisfaction of digital banking services in Zimbabwe. *International Journal of Latest Technology in Engineering, Management & Applied Science*, 12(5), 98–104. <https://doi.org/10.51583/IJLTEMAS.2023.12507>
- Makovoz, O., & Sergii, L. (2024). Evolution of digital transformations in IT companies. *Proceedings of London International Conferences*, 9, 1–7. <https://doi.org/10.31039/plic.2024.9.199>
- Makowska-Tłomak, E., Bedyńska, S., Skorupska, K., Nielek, R., Kornacka, M., & Kopeć, W. (2023). Measuring digital transformation stress at the workplace—Development and validation of the digital transformation stress scale. *PLOS ONE*, 18(12), Article e0287223. <https://doi.org/10.1371/journal.pone.0287223>
- Maksimenko, I., Vashko, T., & Zdrestova-Zakharenkova, S. (2021). Digital transformation and its challenges to the strategic management system. *SHS Web of Conferences*, 106, Article 01035. <https://doi.org/10.1051/shsconf/202110601035>

- Makumbe, W., & Washaya, Y. Y. (2022). Organisational culture and innovation: Testing the Schein Model at a private university in Zimbabwe. *Cogent Business & Management*, 9(1), Article 2150120. <https://doi.org/10.1080/23311975.2022.2150120>
- Mannelli, C. (2021). Informed consent and research. In *The ethics of rapid tissue donation (RTD)* (pp. 65–84). Springer. https://doi.org/10.1007/978-3-030-67201-0_5
- Maphosa, V. (2023). The impact of digital transformation on institutional growth: A case of Zimbabwean universities. *Proceedings of the 17th African Conference on Information Systems and Technology*. Kennesaw State University.
- Margiono, A. (2021). Digital transformation: Setting the pace. *Journal of Business Strategy*, 42(5), 315–322. <https://doi.org/10.1108/JBS-11-2019-0215>
- Maria, E., & Pavlova, I. (2024). *Bank acquisitions of AI and fintech: Impact on performance* (SSRN Scholarly Paper 4706610). Social Science Research Network. <https://doi.org/10.2139/ssrn.4706610>
- Markowitz, J. S. (2019). Summary, conclusions, and implications. In *Mortality among Hispanic and African-American players after desegregation in Major League Baseball* (pp. 59–61). Springer. https://doi.org/10.1007/978-3-030-17280-0_11
- Marks, A., & Al-Ali, M. (2022). Digital transformation in higher education: A framework for maturity assessment. In **COVID-19 challenges to university information technology governance** (pp. 61–81). Springer. https://doi.org/10.1007/978-3-031-13351-0_3
- Martínez-Caro, E., Cegarra-Navarro, J. G., & Alfonso-Ruiz, F. J. (2021). Digital technologies and firm performance: The role of digital organizational culture. *Technological Forecasting and Social Change*, 171, Article 120962. <https://doi.org/10.1016/j.techfore.2021.120962>

- Martínez-Noya, A., & Garcia-Canal, E. (2024). Direct and moderating effects of public R&D support on external knowledge acquisition: The interaction with performance feedback. *Industry and Innovation*, 31(9), 1169–1202. <https://doi.org/10.1080/13662716.2024.2340615>
- Martínez-Peláez, R., Ochoa-Brust, A., Rivera, S., Félix, V. G., Ostos, R., Brito, H., ... & Mena, L. J. (2023). Role of digital transformation for achieving sustainability: Mediated role of stakeholders, key capabilities, and technology. *Sustainability*, 15(14), Article 11221. <https://doi.org/10.3390/su151411221>
- Marx, C., de Paula, D., & Uebernickel, F. (2021). Dynamic capabilities & digital transformation: A quantitative study on how to gain a competitive advantage in the digital age. In *Proceedings of the 29th European Conference on Information Systems (ECIS 2021)* (58). Association for Information Systems. https://aisel.aisnet.org/ecis2021_rp/58/
- Marikyan, D., Papagiannidis, S., & Stewart, G. (2023). Technology acceptance research: Meta-analysis. *Journal of Information Science*, 1-22. <https://doi.org/10.1177/01655515231191177>
- Masinire, E., Dzimba, E., & van der Poll, J. A. (2023). Digital transformation and its impact on customer service in traditional banks: A case study of a Zimbabwean commercial bank. In *2023 Congress on Computer Science, Computer Engineering, & Applied Computing (CSCE)* (pp. 453–458). IEEE. <https://doi.org/10.1109/CSCE60160.2023.00117>
- Masoud, R., & Basahel, S. (2023). The effects of digital transformation on firm performance: The role of customer experience and IT innovation. *Digital*, 3(2), 109–126. <https://doi.org/10.3390/digital3020008>

- Matarazzo, M., Penco, L., Profumo, G., & Quaglia, R. (2021). Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research*, 123, 642–656. <https://doi.org/10.1016/j.jbusres.2020.10.033>
- Mataruka, L. T., & Muzurura, J. (2023). Enhancing small and medium enterprises' performance through social media integration: Embedding the diffusion of innovation theory in the technology-organisation-environment framework. *Qeios*. <https://doi.org/10.32388/XEBM0E>
- Mataruka, L. T., Muzurura, J., & Mkumbuzi, W. P. (2023). Information system management and Zimbabwe manufacturing firms performance: A structural equation modeling analysis. *International Journal of Multidisciplinary Research and Analysis*, 6(3), 982–999. <https://doi.org/10.47191/ijmra/v6-i3-17>
- Matey, J. (2021). Financial performance analysis of distressed banks in Ghana: Exploration of financial ratios and Z-score. *Journal of Advanced Studies in Finance*, 12(1), 20–27. [https://doi.org/10.14505/jasf.v12.1\(23\).02](https://doi.org/10.14505/jasf.v12.1(23).02)
- Mathapati, C. M. (2021). Key aspects of digital technology and its impact on bank employee performance. *IOSR Journal of Business and Management*, 23(8), 1–3. <https://doi.org/10.9790/487X-2308050103>
- Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. *Business & Information Systems Engineering*, 57(5), 339–343. <https://doi.org/10.1007/s12599-015-0401-5>
- Mawere, M. (2018). Digital transformation in Zimbabwean banks: Opportunities and challenges. *International Journal of Economics, Commerce and Management*, 6(7), 197–209.

- Mazikana, A. T. (2023). *The effect of digital transformation on organisational performance of local non-governmental companies in Zimbabwe: A case of OPHID* (SSRN Scholarly Paper 4380771). Social Science Research Network. <https://doi.org/10.2139/ssrn.4380771>
- Mbama, C., & Ezepue, P. (2018). Digital banking, customer experience and bank financial performance: UK customers' perceptions. *International Journal of Bank Marketing*, 36(2), 230–255. <https://doi.org/10.1108/IJBM-11-2016-0181>
- Mbizi, R., Sifile, O., Chikazhe, L., Murebwa, S., & Mbaeni, N. (2022). The nexus between technological financial innovation and financial performance of commercial banks in Zimbabwe. *Skyline Business Journal*, 18(1), 43–58. <https://doi.org/10.37383/sbj180104>
- McAvoy, J., & Grace, A. (2020). Determining digital transformation success factors. In *Proceedings of the 53rd Hawaii International Conference on System Sciences* (pp. 4434–4443). <https://doi.org/10.24251/HICSS.2020.541>
- McDermott, R. (2023). The scientific study of small samples: Challenges confronting quantitative and qualitative methodologies. *The Leadership Quarterly*, 34(3), Article 101675. <https://doi.org/10.1016/j.leaqua.2023.101675>
- McKenna, B., Waizenegger, L., & Cai, W. (2020). The influence of personal and professional commitments on digitally disconnected experiences. In *Human-centric computing in a data-driven society* (pp. 184–198). Springer. https://doi.org/10.1007/978-3-030-62803-1_15
- McKinsey & Company. (2021). *Disrupting the disruptors: Business building for banks*. <https://www.mckinsey.com/industries/financial-services/our-insights/disrupting-the-disruptors-business-building-for-banks>

- McKinsey & Company. (2023). *Rewired: The McKinsey guide to outcompeting in the age of digital and AI*. Wiley.
- McNeish, D., & Wolf, M. G. (2023). Dynamic fit index cutoffs for confirmatory factor analysis models. *Psychological Methods*, 28(1), 61–88. <https://doi.org/10.1037/met0000425>
- Mekuanint, A., Chetana, M., & Dilipkumar, S. (2024). Digitization strategy and innovation performance of microfinance institutions: Mediating role of innovation capability. *Journal of Accounting & Organizational Change*. Advance online publication. <https://doi.org/10.1108/JAOC-12-2023-0241>
- Melville, N., Kraemer, K., & Gurbaxani, V. (2004). Review: Information technology and organizational performance: An integrative model of IT business value. *MIS Quarterly*, 28(2), 283–322. <https://doi.org/10.2307/25148636>
- Memon, M. A., Ting, H., Cheah, J., Ramayah, T., Chuah, F., & Cham, T. H. (2020). Sample size for survey research: Review and recommendations. *Journal of Applied Structural Equation Modeling*, 4(2), 1–20. [https://doi.org/10.47263/JASEM.4\(2\)01](https://doi.org/10.47263/JASEM.4(2)01)
- Mensah, R. O., Agyemang, F., Acquah, A., Babah, P. A., & Dontoh, J. (2020). Discourses on conceptual and theoretical frameworks in research: Meaning and implications for researchers. *Journal of African Interdisciplinary Studies*, 4(5), 53–64. <https://doi.org/10.46769/JAIS.011972146583600143>
- Mentarang, P. J. M. (2023). Research philosophy. In A. K. Bhatia & A. Tripathi (Eds.), *Advances in knowledge acquisition, transfer and management* (pp. 35–51). IGI Global. <https://doi.org/10.4018/978-1-6684-6859-3.ch004>

- Meredith, A. (2023). Participant recruitment. In *The Cambridge handbook of research methods and statistics for the social and behavioral sciences* (pp. 68–80). Cambridge University Press. <https://doi.org/10.1017/9781009010054.010>
- Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4), Article 101385. <https://doi.org/10.1016/j.giq.2019.06.002>
- Mhlanga, D., & Moloi, T. (2020). COVID-19 and the digital transformation of education: What are we learning on 4IR in South Africa? *Education Sciences*, 10(7), 180. <https://doi.org/10.3390/educsci10070180>
- Mhlanga, D., Shava, E., & Dzingirai, M. (2023). Harnessing state capability in embracing the Fourth Industrial Revolution: Is Zimbabwe prepared? In *The Fourth Industrial Revolution in Africa: Exploring the development implications of smart technologies in Africa* (pp. 239–254). Springer. https://doi.org/10.1007/978-3-031-28686-5_12
- Midhunde, U., Harshith, T. N., Ramachandran, M., & Kurinjimalar, R. (2023). An empirical investigation of innovation and technology in banking. *Recent Trends in Management and Commerce*, 4(2), 121–129. <https://doi.org/10.46632/rmc/4/2/16>
- Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on organizational creativity and firm performance. *Information & Management*, 58(3), Article 103434. <https://doi.org/10.1016/j.im.2021.103434>
- Miklaszewska, E., Kil, K., & Idzik, M. (2022). Digital transformation in banking. In *Responsible finance and digitalization: Implications and developments* (pp. 24–45). Routledge. <https://doi.org/10.4324/9781003144427-9>

- Miller, D. (2003). An asymmetry-based view of advantage: Towards an attainable sustainability. *Strategic Management Journal*, 24(10), 961–976. <https://doi.org/10.1002/smj.316>
- Min, L., Nadalia, L., Aijun, K., & Wenchuan, C. (2023). Customer concentration and digital transformation. *International Review of Financial Analysis*, 89, Article 102788. <https://doi.org/10.1016/j.irfa.2023.102788>
- Modiba, M. M., & Kekwaletswe, R. M. (2020). Technological, organizational and environmental framework for digital transformation in South African financial service providers. *International Journal of Innovative Science and Research Technology*, 5(5), 180–196. <https://doi.org/10.38124/IJISRT20MAY223>
- Mogoale, P., Kekwaletswe, R., & Mongale, A. (2021). Analysis of IT capability impact on organizational performance. *International Journal of Computer Trends and Technology*, 69(7), 76–81. <https://doi.org/10.14445/22312803/IJCTT-V69I7P111>
- Mohammed, L., & Ashour, A. (2018). Triangulation as a powerful methodological research technique in technology-based services. *Business and Management Studies: An International Journal*, 6(1), 1–12. <https://doi.org/10.15295/bmij.v6i1.209>
- Mohapatra, S. C., & Chamola, S. K. (2020). Sampling in research series 1: Basic concepts in estimating sample size. *Medical Science and Technology*. <https://doi.org/10.24321/2394.6539.202003>
- Moher, D., Bouter, L., Kleinert, S., Glasziou, P., Sham, M. H., Barbour, V., Coriat, A. M., Foeger, N., & Dirnagl, U. (2020). The Hong Kong Principles for assessing researchers: Fostering research integrity. *PLOS Biology*, 18(7), Article e3000737. <https://doi.org/10.1371/journal.pbio.3000737>

- Moksh, S., Singh, R., & Rathore, R. (2024). The study of digital transformation strategies: Driving business agility for competitive edge. *Indian Scientific Journal of Research in Engineering and Management*. Advance online publication. <https://doi.org/10.55041/IJSREM34637>
- Momot, V., & Lytvynenko, O. (2019). Adjusting bank recruitment to the specifics of the millennial generation as conditions of attractiveness decline for employment in the banking sector. *e-Finanse: Financial Internet Quarterly*, 15*(4), 73–82. <https://doi.org/10.2478/fiqf-2019-0029>
- Moore, K. T. H., Michael, J., Fossler, M. J., & Younis, I. R. (2022). The importance of participant tracking when conducting clinical pharmacology drug trials. *The Journal of Clinical Pharmacology*, 62(12), 1465–1467. <https://doi.org/10.1002/jcph.2135>
- Morakanyane, R., O'Reilly, P., McAvoy, J., & Grace, A. (2020). Determining digital transformation success factors. In *Proceedings of the 53rd Hawaii International Conference on System Sciences* (pp. 4966–4975). <https://doi.org/10.24251/HICSS.2020.610>
- Morra, L. M. (2022). Organisational changes in the age of digital transformation. In *Digital transformation and organizational change* (pp. 119–132). IGI Global. <https://doi.org/10.4018/978-1-6684-5864-8.ch008>
- Moses, M. W. (2021). Methodological interest convergence: Research site anonymity's maintenance of structural racism. *International Journal of Qualitative Studies in Education*, 34(9), 886–900. <https://doi.org/10.1080/09518398.2021.1930257>
- Moyo, I. L., Gumbo, V., Chikodza, E., & Jones, B. (2019). An empirical study on the factors influencing the performance of financial institutions in Zimbabwe. *International Journal of Finance & Banking Studies*, 8(4), 1–20. <https://doi.org/10.20525/ijfbs.v8i4.514>

- Mpofu, F. Y., & Mpofu, A. (2023). The Covid-19 pandemic and digital transformation in Zimbabwean state universities: Opportunities, challenges, and implications for the transition to online learning. *International Journal of Social Science Research and Review*, 6(3), 64–88. <https://doi.org/10.37284/ijssrr.6.3.254>
- Mugge, P., Abbu, H., Michaelis, T. L., Kwiatkowski, A., & Gudergan, G. (2020). Patterns of digitization: A practical guide to digital transformation. *Research-Technology Management*, 63*(2), 27–35. <https://doi.org/10.1080/08956308.2020.1707003>
- Muhammad, A. P. (2022). Impact of digital transformation and big data analytic capabilities of the Indonesian bank profitability. *Journal of Economics, Business, and Accountancy Ventura*, 25(2), 196–207. <https://doi.org/10.14414/jebav.v25i2.3121>
- Muhammad, S., Afridi, F. K., Ali, W., Shah, W. U., & Alasan, I. I. (2020). Effect of training on employee commitment: Mediating role of job satisfaction. *Pakistan Journal of Society, Education and Language*, 7(1), 28–37. <https://jehanf.com/pjsel/index.php/journal/article/view/299>
- Muhardis, M., Tola, B., & Haribowo, H. (2019). The respondent factors on the digital questionnaire responses. *Research and Evaluation in Education*, 5(2), 151–159. <https://doi.org/10.21831/reid.v5i2.26943>
- Mukhuty, S., Upadhyay, A., & Rothwell, H. (2022). Strategic sustainable development of Industry 4.0 through the lens of social responsibility: The role of human resource practices. *Business Strategy and the Environment*, 31(5), 2068–2081. <https://doi.org/10.1002/bse.3008>
- Mulisa, F. (2022). Sampling techniques involving human subjects: Applications, pitfalls, and suggestions for further studies. *International Journal of Academic Research in Education*, 8(1), 74–83. <https://doi.org/10.17985/ijare.1225214>

- Mullan, J., & Rolleston, C. (2020). Barriers to skills development in India's informal economy. *International Journal of Training Research*, 18(3), 211–230. <https://doi.org/10.1080/14480220.2020.1783547>
- Murrar, A., Asfour, B., & Paz, V. (2024). Banking sector and economic growth in the digital transformation era: Insights from maximum likelihood and Bayesian structural equation modeling. *Asian Journal of Economics and Banking*. Advance online publication. <https://doi.org/10.1108/AJEB-12-2023-0122>
- Musaev, V., Khobotova, S., Knyazeva, I. G., Katunina, N., & Puzina, N. (2021). Assessment of the economic results of the digital transformation of the client-centric system of Sberbank of Russia. *SHS Web of Conferences*, 93, Article 04007. <https://doi.org/10.1051/shsconf/20219304007>
- Musarapasi, S., & Garanti, Z. (2020). Effects of authoritarian and ethical leadership on employee performance: Mediating role of employee competencies and performance management practices in Zimbabwean banks. *Journal of Research on Educational Sciences and Development*, 1(12), 143–156. <https://doi.org/10.17770/jresd2020vol1.12.5404>
- Musau, S. (2022). Digital transformation and liquidity risk of commercial banks in Kenya. *Journal of Finance and Accounting*, 6(1), 41–55. <https://doi.org/10.53819/81018102t5079>
- Musu, L., Dohr, S., & Netten, A. (2020). Quality control during data collection: Refining for rigor. In H. Wagemaker (Ed.), *Reliability and validity of international large-scale assessment* (pp. 123–140). Springer. https://doi.org/10.1007/978-3-030-53081-5_8
- Mwita, K. M. (2022). Factors to consider when choosing data collection methods. *International Journal of Research in Business and Social Science*, 11(5), 532–538. <https://doi.org/10.20525/ijrbs.v11i5.1842>

- Nadir, U., Dave, L., Yi, M. D., Ikmal Hisham, F., & Alam, M. (2023). The use of data repositories in dermatology. *Archives of Dermatological Research*, 315(7), 1851–1852. <https://doi.org/10.1007/s00403-023-02614-5>
- Nadkarni, S., & Prügl, R. (2021). Digital transformation: A review, synthesis and opportunities for future research. *Management Review Quarterly*, 71(2), 233–341. <https://doi.org/10.1007/s11301-020-00185-7>
- Nahed, H., Alrawashedh, H., Mohammad, F., & Shubita, S. (2024). Impact of digital transformation on the organization's financial performance: A case of Jordanian commercial banks listed on the Amman Stock Exchange. *Banks and Bank Systems*, 19(1), 126–134. [https://doi.org/10.21511/bbs.19\(1\).2024.11](https://doi.org/10.21511/bbs.19(1).2024.11)
- Naimi-Sadigh, A., Asgari, T., & Rabiei, M. (2021). Digital transformation in the value chain disruption of banking services. *Journal of the Knowledge Economy*, 13(2), 1212–1242. <https://doi.org/10.1007/s13132-021-00759-0>
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8), Article 103773. <https://doi.org/10.1016/j.respol.2019.03.018>
- Nawi, F. A. M., Tambi, A. M. A., Samat, M. F., & Mustapha, W. M. W. (2020). A review on the internal consistency of a scale: The empirical example of the influence of human capital investment on Malcom Baldrige quality principles in TVET institutions. *Asian People Journal*, 3(1), 19–29. <https://doi.org/10.37231/apj.2020.3.1.121>
- Nazeha, N., Pavagadhi, D., Kyaw, B. M., Car, J., Jimenez, G., & Tudor Car, L. (2020). A digitally competent health workforce: Scoping review of educational frameworks. *Journal of Medical Internet Research*, 22(11), Article e22706. <https://doi.org/10.2196/22706>

- Nazneen, A., Goyal, S., Bhalla, P., & Jeet, V. (2019). A study of changing key performance indicators in banking sector. *Research in World Economy*, 10(3), 56–63. <https://doi.org/10.5430/rwe.v10n3p56>
- Ndlovu, L., & Dube, L. K. (2021). Digital transformation of the Zimbabwean banking sector: Implications for growth and development. *South African Journal of Economic and Management Sciences*, 24(1), Article a3494. <https://doi.org/10.4102/sajems.v24i1.3494>
- Neve, O. M., van Benthem, P. P. G., Stiggelbout, A. M., & Hensen, E. F. (2021). Response rate of patient reported outcomes: The delivery method matters. *BMC Medical Research Methodology*, 21, Article 220. <https://doi.org/10.1186/s12874-021-01419-2>
- Nguyen, T. M. (2020). Do extrinsic motivation and organisational culture additively strengthen intrinsic motivation in online knowledge sharing? An empirical study. *VINE Journal of Information and Knowledge Management Systems*, 50(1), 75–93. <https://doi.org/10.1108/VJIKMS-02-2019-0019>
- Nguyen-Viet, H., & Nguyen, D. V. (2023). How does digital transformation impact bank performance? *Cogent Economics & Finance*, 11(1), Article 2217582. <https://doi.org/10.1080/23322039.2023.2217582>
- Ning, L., & Yao, D. (2023). The impact of digital transformation on supply chain capabilities and supply chain competitive performance. *Sustainability*, 15(13), Article 10107. <https://doi.org/10.3390/su151310107>
- Nooralisa, M., Tuah, N. M., & Wills, G. B. (2020). Measuring the application of anthropomorphic gamification for transitional care; A goal-question-metric approach. In R. Alfred, Y. Lim, H. Ibrahim, & P. Anthony (Eds.), *Computational science and technology* (pp. 553–556). Springer. https://doi.org/10.1007/978-981-15-0058-9_53

- Nooteboom, B. (2022). *Dynamic capabilities*. Cambridge University Press. <https://doi.org/10.1017/9781009029025>
- Nousopoulou, E., Kamariotou, M., & Kitsios, F. (2022). Digital transformation strategy in post-COVID era: Innovation performance determinants and digital capabilities in driving schools. *Information*, *13*(7), Article 323. <https://doi.org/10.3390/info13070323>
- Nurs, C. L. (2020). Research ethics in real-world research. *Journal of Clinical Nursing*, *29*(5–6), 1019–1022. <https://doi.org/10.1111/jocn.15083>
- Nwaiwu, F. (2018). Review and comparison of conceptual frameworks on digital business transformation. *Journal of Competitiveness*, *10*(3), 86–100. <https://doi.org/10.7441/joc.2018.03.06>
- Nwankpa, J. K., & Roumani, Y. (2016). IT capability and digital transformation: A firm performance perspective. In *Proceedings of the Thirty-Seventh International Conference on Information Systems*. Association for Information Systems. <https://aisel.aisnet.org/icis2016/ISSstrategy/Presentations/4/>
- Nyamekye, K., Asare, G. O., de-Graft Johnson, E., Owusu-Ansah, O. B., Obeng, D., & Quarshie, J. (2023). Financial innovation and banks performance in developing countries: Evidence from Ghana. *Business Strategy & Development*, *6*(4), 405–419. <https://doi.org/10.1002/bsd2.259>
- Orji, C. I. (2019). Digital business transformation: Towards an integrated capability framework for digitization and business value generation. *Journal of Global Business and Technology*, *15*(1), 47–57.

- Osei, L. K., Cherkasova, Y., & Oware, K. M. (2023). Unlocking the full potential of digital transformation in banking: A bibliometric review and emerging trend. *Future Business Journal*, 9, Article 30. <https://doi.org/10.1186/s43093-023-00207-2>
- Osmundsen, K., Iden, J., & Bygstad, B. (2018). Digital transformation: Drivers, success factors, and implications. In *Proceedings of the Mediterranean Conference on Information Systems*. Association for Information Systems. <https://aisel.aisnet.org/mcis2018/37>
- Ozimek, N., Salama, M., & Woodruff, T. K. (2023). National oncofertility registries around the globe: A pilot survey. *Frontiers in Endocrinology*, 14, Article 1148314. <https://doi.org/10.3389/fendo.2023.1148314>
- Panda, S., & Rath, S. K. (2021). How information technology capability influences organizational agility: Empirical evidence from the Indian banking industry. *Journal of Indian Business Research*, 13(4), 564–585. <https://doi.org/10.1108/JIBR-11-2020-0364>
- Pandey, G. P. (2024). Doing a literature review in English language teaching research: Practical suggestions. *Access: An International Journal of Nepal Library Association*, 3(1), 133–148. <https://doi.org/10.3126/access.v3i1.69429>
- Pandit, K., Buddhi, D., Averineni, A., Narayana, M. S., Jahnavi, G., & Rohitha, K. (2023). Detailed investigation of influence of Internet of Things and big data on digital transformation in marketing. In *2023 10th International Conference on Computing for Sustainable Global Development (INDIACom)* (pp. 1185–1189). IEEE. <https://doi.org/10.1109/INDIACom56937.2023.10097447>
- Papathomas, A., & Konteos, G. (2022). Digital transformation journey for incumbent banks: The case study of Greece. *International Journal of Marketing Studies*, 14(2), 13–26. <https://doi.org/10.5539/ijms.v14n2p13>

- Pardo-Jaramillo, S., Muñoz-Villamizar, A., Osuna, I., & Roncancio, R. (2020). Mapping research on customer centricity and sustainable organizations. *Sustainability*, 12(19), Article 7908. <https://doi.org/10.3390/su12197908>
- Paula, T. R., & Bibler Zaidi, N. L. (2019). Limited by our limitations. *Perspectives on Medical Education*, 8(4), 261–264. <https://doi.org/10.1007/s40037-019-00530-x>
- Peng, Y., Zhou, J., Lin, M., & Feng, D. (2022). The impact of IT capability on corporate green technological innovation: Evidence from manufacturing companies in China. *Journal of Information & Knowledge Management*, 22(1), Article 2250068. <https://doi.org/10.1142/S021964922250068X>
- Perkasa, D. H., & Purwanto, S. (2024). Job hopping behavior in millennials. *International Journal of Accounting, Management, Economics and Social Sciences*, 2(3), 1110–1124. <https://doi.org/10.61990/ijamesc.v2i3.232>
- Perrin, A. (2023). Research design and methods in social sciences research. In *Advances in knowledge acquisition, transfer, and management* (pp. 82–95). IGI Global. <https://doi.org/10.4018/978-1-6684-6859-3.ch007>
- Perumal, R., & Aithal, P. S. (2023). A study on the performance of employees in the banking sector and its impact on the organizational health. *International Journal of Management, Technology, and Social Sciences*, 8(4), 118–126. <https://doi.org/10.47992/IJMTS.2581.6012.0294>
- Pettis, B. J. (2023). Big data analytics to support open innovation strategies in banks. *Risks*, 11(6), Article 106. <https://doi.org/10.3390/risks11060106>

- Pham, H. A. T., Thalassinou, E. I., & Le, H. A. (2022). The impact of digital transformation on performance: Evidence from Vietnamese commercial banks. *Journal of Risk and Financial Management*, 15(1), Article 21. <https://doi.org/10.3390/jrfm15010021>
- Phạm, T. T. (2023). The impact of digital transformation on organizational resilience of Vietnamese commercial banks. *Journal of Technology and Innovation in Financial Services*, 10(2), 145–162. <https://doi.org/10.59276/tckhdt.2023.12.2573>
- Phiri, M. (2020). Impact of digital marketing capabilities on market performance of small to medium enterprise agro-processors in Harare, Zimbabwe. *Business: Theory and Practice*, 21(2), 746–757. <https://doi.org/10.3846/btp.2020.12149>
- Phuong, T., Tran, T. T. L., Le, T. H. L., & Phan, N. T. T. (2023). Digital transformation of the banking industry in developing countries. *International Journal of Professional Business Review*, 8(5), Article e01503. <https://doi.org/10.26668/businessreview/2023.v8i5.1503>
- Pieper, I. J., & Thomson, C. J. H. (2020). Vulnerability in human research. *Monash Bioethics Review*, 38(1), 68–82. <https://doi.org/10.1007/s40592-020-00110-4>
- Pilatin, A. (2023). The effect of bank employees with a postgraduate education level on credit risk and financial performance. *Istanbul Business Research*, 52(2), 407–436. <https://doi.org/10.26650/ibr.2023.52.1109060>
- Pilowsky, J., Elliott, R., & Roche, M. A. (2024). Data cleaning for clinician researchers: Application and explanation of a data-quality framework. *Australian Critical Care*. Advance online publication. <https://doi.org/10.1016/j.aucc.2024.03.004>
- Pintér, É. (2023). Role of technology in innovative financial services as reflected in the breakthrough of BigTech companies. *Economy & Finance*, 10(1), 38–54. <https://doi.org/10.33908/EF.2023.1.3>

- Plugge, A., & Nikou, S. (2024). Quantitative research. In *Digital transformation for business sustainability* (pp. 85–102). Springer. https://doi.org/10.1007/978-3-031-51528-6_4
- Pluijmer, N. J., Molnar, W. A., & Proper, H. A. (2013). Research approach in enterprise engineering: A matter of engineering. In *Advances in enterprise engineering VII* (pp. 50–64). Springer. https://doi.org/10.1007/978-3-642-38490-5_6
- Poláková-Kersten, M., Khanagha, S., van den Hooff, B., & Khapova, S. N. (2023). Digital transformation in high-reliability organizations: A longitudinal study of the micro-foundations of failure. *The Journal of Strategic Information Systems*, 32(1), Article 101756. <https://doi.org/10.1016/j.jsis.2023.101756>
- Porfirio, J. A., Felício, J. A., & Carrilho, T. (2024). Factors affecting digital transformation in banking. *Journal of Business Research*, 171, Article 114393. <https://doi.org/10.1016/j.jbusres.2023.114393>
- Powell, T. C. (1995). Total quality management as competitive advantage: A review and empirical study. *Strategic Management Journal*, 16(1), 15–37. <https://doi.org/10.1002/smj.4250160105>
- Prada-Ramallal, G., Roque, F., Herdeiro, M. T., Takkouche, B., & Figueiras, A. (2018). Primary versus secondary source of data in observational studies and heterogeneity in meta-analyses of drug effects: A survey of major medical journals. *BMC Medical Research Methodology*, 18, Article 97. <https://doi.org/10.1186/s12874-018-0561-3>
- Prajapat, V., Rahaman, M. A., Taru, R., & Gupta, A. (2023). Factors influencing employee performance and their impact on productivity: A study of commercial banks in Bangladesh. *Banks and Bank Systems*, 18(2), 127–136. [https://doi.org/10.21511/bbs.18\(2\).2023.11](https://doi.org/10.21511/bbs.18(2).2023.11)

- Pramanik, H. S., Kirtania, M., & Pani, A. K. (2019). Essence of digital transformation - Manifestations at large financial institutions from North America. *Future Generation Computer Systems*, 95, 323–343. <https://doi.org/10.1016/j.future.2018.12.003>
- Prandner, D., & Weichbold, M. (2019). Building a sampling frame for migrant populations via an onomastic approach: Lesson learned from the Austrian Immigrant Survey 2016. *Survey Methods: Insights from the Field*. <https://doi.org/10.13094/SMIF-2019-00006>
- Presti, C. L. (2021). *Integrating performance and risk in a management control system*. Springer.
- Pristiyono, P., Juliana, J., & Prayoga, Y. (2022). Measuring customer trust through the digital transformation of banking as a competitive advantage. *Jurnal Ekonomi dan Bisnis Islam*, 11(2), 214–229. <https://doi.org/10.26418/jebik.v11i2.51986>
- Probojakti, W., Utami, H. N., Prasetya, A., & Riza, M. F. (2024). Building sustainable competitive advantage in banking through organizational agility. *Sustainability*, 16(19), Article 8191. <https://doi.org/10.3390/su16198191>
- Putranto, L. S. (2019). The use of an online survey to speed up the data collection process. *IOP Conference Series: Materials Science and Engineering*, 508(1), Article 012013. <https://doi.org/10.1088/1757-899X/508/1/012013>
- Pye, J., Rai, A., & Dong, J. Q. (2023). Business value of information technology capabilities: An institutional governance perspective. *Information Systems Research*. Advance online publication. <https://doi.org/10.1287/isre.2023.1228>
- Qatawneh, A. M., & Al-Okaily, M. (2024). The mediating role of technological vigilance between IT infrastructure and AIS efficiency. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(1), Article 100212. <https://doi.org/10.1016/j.joitmc.2024.100212>

- Qi, Y., & Xiao, X. (2020). Enterprise management reform in the digital economy era. *Management World Journal*, 36(6), 135–152. <https://doi.org/10.3969/j.issn.1002-5502.2020.06.012>
- Qureshi, M. A., Raza, M. A., & Hussain, S. K. (2020). Digital transformation and organizational performance: A systematic review and future research agenda. *Journal of Information Technology & Politics*, 17(2), 123–142. <https://doi.org/10.1080/15228916.2020.1746236>
- Raburn, I. C., Bunnik, E. M., & Cronin, A. J. (2023). Vulnerable person investigation plan (VIP) to optimise inclusion in clinical trials. *Journal of Medical Ethics*, 49(7), 489–490. <https://doi.org/10.1136/jme-2023-109053>
- Radenković, S. D., Hanić, H., & Bugarčić, M. (2023). Applying artificial intelligence in the digital transformation of banking sector. *Proceedings*, 85(1), Article 19. <https://doi.org/10.3390/proceedings2023085019>
- Rahaman, M. A., Taru, R. D., Gupta, A., Prajapat, V., & Mahmud, M. A. L. (2023). Factors influencing employee performance and their impact on productivity: A study of commercial banks in Bangladesh. *Banks and Bank Systems*, 18(2), 127–136. [https://doi.org/10.21511/bbs.18\(2\).2023.11](https://doi.org/10.21511/bbs.18(2).2023.11)
- Rahman, M. M., Tabash, I. M., Salamzadeh, A., Abduli, S., & Rahaman, M. S. (2022). Sampling techniques (probability) for quantitative social science researchers: A conceptual guidelines with examples. *SEEU Review*, 17(1), 1–19. <https://doi.org/10.2478/seeur-2022-0023>
- Ramalingam, H., & Venkatesan, V. P. (2019). Conceptual analysis of Internet of Things use cases in banking domain. In *2019 IEEE Region 10 Conference (TENCON)* (pp. 2034–2039). <https://doi.org/10.1109/TENCON.2019.8929473>

- Ramesh, Y., & Adhikari, B. (2023). A review of an article based on the mixed methods approach in educational sciences regarding teacher retention intention in the Asian context. *Online Journal of Education and Management Science*, 2(2), 1–10. <https://doi.org/10.3126/ocemjmtss.v2i2.54250>
- Ramirez, H. (2022). Sample size justification. *Collabra: Psychology*, 8(1), Article 33267. <https://doi.org/10.1525/collabra.33267>
- Ramirez-Asís, E., Silva-Zapata, M., Ramirez-Asís, E., Sharma, T., Durga, S., & Pant, B. (2022). A conceptual analysis on the impact of big data analytics toward on digital marketing transformation. In *2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE)* (pp. 1651–1655). IEEE. <https://doi.org/10.1109/ICACITE53722.2022.9823708>
- Ranjbarfard, M., & Mirsalari, S. R. (2020). IT capability evaluation through the IT capability map. *Journal of Information Systems and Telecommunication*, 8(4), 226–237. <https://doi.org/10.29252/JIST.8.32.207>
- Rapkin, L. (2022). *An exploration of customer satisfaction with electronic research administration (ERA) systems* [Doctoral dissertation, Johns Hopkins University].
- Rath, S., & Mishra, A. (2022). A study on the glass ceiling faced by women in the banking sector. *International Journal of Research Publication and Reviews*, 3(6), 3864–3867. <https://doi.org/10.55248/gengpi.2022.3.6.45>
- Rego, B., Jayantilal, S., Ferreira, J. J., & Carayannis, E. (2021). Digital transformation and strategic management: A systematic review of the literature. *Journal of the Knowledge Economy*, 13, 1–28. <https://doi.org/10.1007/s13132-021-00853-3>

- Reis, J., & Melão, N. (2023). Digital transformation: A meta-review and guidelines for future research. *Heliyon*, 9(9), Article e12834. <https://doi.org/10.1016/j.heliyon.2023.e12834>
- Reis, J., Amorim, M., Melão, N., & Matos, P. (2020). Digital transformation: A literature review and guidelines for future research. In Á. Rocha, H. Adeli, L. P. Reis, & S. Costanzo (Eds.), *Trends and advances in information systems and technologies* (pp. 443–456). Springer. https://doi.org/10.1007/978-3-030-45697-9_43
- Resa, J. M., Mithi, F., & Kosgei, M. (2022). Financial innovations and performance of tier III commercial banks in Kenya. *The Strategic Journal of Business & Change Management*, 9(2), 1083–1101. <https://doi.org/10.61426/sjbcm.v9i2.2320>
- Retnawati, H., & Arliani, E. (2022). Designing closed-ended questions into open-ended questions to support student's creative thinking skills and mathematical communication skills. *JTAM (Jurnal Teori dan Aplikasi Matematika)*, 6(3), 696–707. <https://doi.org/10.31764/jtam.v6i3.8517>
- Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. *Journal of Management*, 35(3), 718–804. <https://doi.org/10.1177/0149206308330560>
- Ridwan, W., Wiranto, I., & Dako, R. D. R. (2020). Ability estimation in computerized adaptive test using Mamdani Fuzzy Inference System. *IOP Conference Series: Materials Science and Engineering*, 850(1), Article 012004. <https://doi.org/10.1088/1757-899X/850/1/012004>
- Riley, K. E., Molloy, L. J., Wilson, V. H., & Middleton, R. (2023). Observing resuscitative practice: A novice researcher's experience of obtaining ethics approval. *Nursing Ethics*, 30(7–8), 1190–1198. <https://doi.org/10.1177/09697330231166071>

- Rios-Lama, C. A., Jorge, J., & Vargas-Merino, J. A. (2023). Is there an impact of digital transformation on consumer behaviour? An empirical study in the financial sector. *Economies*, *11*(5), Article 132. <https://doi.org/10.3390/economies11050132>
- Ritella, G., Rajala, A., & Renshaw, P. (2020). Using chronotope to research the space-time relations of learning and education: Dimensions of the unit of analysis. *Learning, Culture and Social Interaction*, *31*, Article 100381. <https://doi.org/10.1016/j.lcsi.2020.100381>
- Ritter, T., & Pedersen, C. L. (2020). Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. *Industrial Marketing Management*, *86*, 180–190. <https://doi.org/10.1016/j.indmarman.2019.11.019>
- Riyadi, N. (2023). Artificial intelligence in human resource management practices. *KnE Social Sciences*, *8*(9), 336–345. <https://doi.org/10.18502/kss.v8i9.13409>
- Rizwana, B., Asiya, J., Tabassum, B., Taiyaba, K., Tampa, S. G., & Tankari, D. (2024). Transformative waves: Impact of information technology on operations of commercial banks in India. *International Research Journal of Applied Engineering and Management*, *8*(1), 774–784. <https://doi.org/10.47392/irjaem.2024.0106>
- Rochmawati, W. H., & Indiyati, D. (2022). The influence of competency and demographic on employee performance at the ministry of religious affairs of Sragen Regency: A research framework. In *Sustainable future: Trends, strategies, and development* (pp. 123–135). Routledge. <https://doi.org/10.1201/9781003335832-56>
- Rodrigues, L., Oliveira, A., & Rodrigues, H. (2023). Technology management has a significant impact on digital transformation in the banking sector. *Strategic Change*, *32*(5), 519–531. <https://doi.org/10.1002/jsc.2567>

- Rodríguez-Abitia, G., & Bribiesca-Correa, G. (2021). Assessing digital transformation in universities. *Future Internet*, 13(2), Article 52. <https://doi.org/10.3390/fi13020052>
- Rodríguez-Espíndola, O., Chowdhury, S., Dey, P. K., Albores, P., & Emrouznejad, A. (2022). Analysis of the adoption of emergent technologies for risk management in the era of digital manufacturing. *Technological Forecasting and Social Change*, 178, Article 121562. <https://doi.org/10.1016/j.techfore.2022.121562>
- Roh, Y., Heo, G., & Whang, S. E. (2021). A survey on data collection for machine learning: A big data - AI integration perspective. *IEEE Transactions on Knowledge and Data Engineering*, 33(4), 1328–1347. <https://doi.org/10.1109/TKDE.2019.2946162>
- Romli, N. (2023). A pilot study to test the reliability and validity of the research instrument. *Malaysian Journal of Social Sciences and Humanities*, 8(3), Article e002149. <https://doi.org/10.47405/mjssh.v8i3.2149>
- Ronald, E., Smith, F. L., & Smoll, F. L. (2024). Logical positivism. In *Quantitative measurement in the study of coaching behaviours, their effects on athletes, and their modification* (pp. 13–29). Routledge. <https://doi.org/10.4324/9781003381891-9>
- Ross, P. T., & Zaidi, N. L. B. (2019). Limited by our limitations. *Perspectives on Medical Education*, 8(4), 261–264. <https://doi.org/10.1007/s40037-019-00530-x>
- Rostika, G. (2023). Measurement digital transformation capability on operational performance (Case study: Bank BJB). *International Journal of Current Science Research and Review*, 6(12), 8017–8025. <https://doi.org/10.47191/ijcsrr/v6-i12-42>
- Rozali, M. Z., Puteh, S., Nur Yunus, F. A., Hamdan, N. H., & Mohd Latif, F. (2022). Reliability and validity of instrument on academic enhancement support for student-athlete using

- Rasch measurement model. *Asian Journal of University Education*, 18(1), 290–299. <https://doi.org/10.24191/ajue.v18i1.17199>
- Rupeika-Apoga, R., Petrovska, K., & Bule, L. (2022). The effect of digital orientation and digital capability on digital transformation of SMEs during the COVID-19 pandemic. *Journal of Theoretical and Applied Electronic Commerce Research*, 17(2), 669–685. <https://doi.org/10.3390/jtaer17020035>
- Saarikko, T., Westergren, U. H., & Blomquist, T. (2020). Digital transformation: Five recommendations for the digitally conscious firm. *Business Horizons*, 63(6), 825–839. <https://doi.org/10.1016/j.bushor.2020.07.005>
- Sackitey, D. T. (2019). A critical analysis of key financial performance indicators in the banking industry in Ghana. *Journal of Business and Economic Development*, 4(2), 44–53. <https://doi.org/10.11648/j.jbed.20190402.11>
- Safurudin, N., Rosemann, M., Recker, J., & Genrich, M. (2014). A typology of business transformation. **360° - The Business Transformation Journal*, 11*, 25–41.
- Saira, G., & Farhan, Q. (2022). Big data analytics, information technology capability, innovation capability and organizational performance: An Asian perspective. *ABBSSR*, 2(1), 51–61. <https://doi.org/10.62019/abbssr.v2i1.29>
- Sakala, L., & Phiri, J. (2019). Factors affecting adoption and use of mobile banking services in Zambia based on TAM model. *Open Journal of Business and Management*, 7(3), 1380–1397. <https://doi.org/10.4236/ojbm.2019.73095>
- Saldanha, T. (2019). *Why digital transformations fail: The surprising disciplines of how to take off and stay ahead*. Berrett-Koehler Publishers.
- Salkind, N. J. (Ed.). (2010). *Encyclopedia of research design*. SAGE Publications.

- Salume, P. K., Cintra, L. P., & da Silva, L. L. (2022). Driving and inhibiting factors for digital transformation and their effects over the advent of the Covid-19 pandemic. *Journal of Information Systems and Technology Management*, 19, Article e2022190013. <https://doi.org/10.4301/S1807-1775202219013>
- Sandberg, J., & Alvesson, M. (2021). Meanings of theory: Clarifying theory through typification. *Journal of Management Studies*, 58(2), 487–516. <https://doi.org/10.1111/joms.12587>
- Sapkota, M. (2024). Implications and critiques of quantitative research: A systematic review. *Journal of Learning Theory and Methodology*, 5(3), 153–159. <https://doi.org/10.17309/jltm.2024.5.3.09>
- Saunders, M., Lewis, P., & Thornhill, A. (2012). *Research methods for business students* (6th ed.). Pearson Education.
- Saunila, M. (2020). Innovation capability in SMEs: A systematic review of the literature. *Journal of Innovation & Knowledge*, 5(4), 260–265. <https://doi.org/10.1016/j.jik.2019.11.002>
- Saxena, D., Muzellec, L., & McDonagh, J. (2022). From bureaucracy to citizen-centricity: How the citizen-journey should inform the digital transformation of public services. *International Journal of Electronic Government Research*, 18(1), 1–17. <https://doi.org/10.4018/IJEGR.305230>
- Scalcău, A. (2023). Research methods in discourse analysis: Quantitative, qualitative and mixed-methods approaches. *Professional Communication and Translation Studies*, 16(1), 93–103. <https://doi.org/10.5281/zenodo.5736354>

- Schallmo, D., Williams, C. A., & Boardman, L. (2018). Digital transformation of business models — Best practice, enablers, and roadmap. *International Journal of Innovation Management*, 21(8), Article 1740014. <https://doi.org/10.1142/S136391961740014X>
- Schilirò, D. (2024). Digital transformation and its impact on organizations. *International Journal of Business and Management*, 19(6), 71–84. <https://doi.org/10.5539/ijbm.v19n6p71>
- Schmid, Y., & Pscherer, F. (2021). Digital transformation affecting human resource activities: A mixed-methods approach. In T. Ahram & R. Taiar (Eds.), *Human interaction, emerging technologies and future systems V* (pp. 543–549). Springer. https://doi.org/10.1007/978-3-030-85540-6_68
- Schmidt, S. A. J., Lo, S., & Hollestein, L. M. (2018). Research techniques made simple: Sample size estimation and power calculation. *Journal of Investigative Dermatology*, 138(8), 1678–1682. <https://doi.org/10.1016/j.jid.2018.06.165>
- Schneider, A., Wagenknecht, A., Sydow, H., Riedlinger, D., Holzinger, F., Figura, A., Deutschbein, J., Reinhold, T., Pigorsch, M., Stasun, U., Schenk, L., & Möckel, M. (2023). Primary and secondary data in emergency medicine health services research – a comparative analysis in a regional research network on multimorbid patients. *BMC Medical Research Methodology*, 23, Article 34. <https://doi.org/10.1186/s12874-023-01855-2>
- Schrage, M., Muttreja, V., & Kwan, A. (2022). How the wrong KPIs doom digital transformation. *MIT Sloan Management Review*, 63(3), 35–40. <https://sloanreview.mit.edu/article/how-the-wrong-kpis-doom-digital-transformation>
- Schumpeter, J. A. (1934). *The theory of economic development: An enquiry into profits, capital, credit, interest and the business cycle*. Harvard University Press.

- Scuotto, V., Nicotra, M., Del Giudice, M., Krueger, N., & Gregori, G. L. (2021). A microfoundational perspective on SMEs' growth in the digital transformation era. *Journal of Business Research*, 129, 382–392. <https://doi.org/10.1016/j.jbusres.2021.03.004>
- Sebayang, S. A. M., & Lestario, F. (2021). An investigation of employee performance in state-owned enterprises. *EPRA International Journal of Economics, Business and Management Studies*, 8(9), 15–22. <https://doi.org/10.36713/epra1013>
- Seevaratnam, V., Gannaway, D., & Lodge, J. (2023). Design thinking-learning and lifelong learning for employability in the 21st century. *Journal of Teaching and Learning for Graduate Employability*, 14(1), 167–186. <https://doi.org/10.21153/jtlge2023vol14no1art1616>
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). John Wiley & Sons.
- Selimović, J., Pilav-Velić, A., & Krndžija, L. (2021). Digital workplace transformation in the financial service sector: Investigating the relationship between employees' expectations and intentions. *Technology in Society*, 66, Article 101640. <https://doi.org/10.1016/j.techsoc.2021.101640>
- Seneviratne, R. A. (2023). Ethics of research. *Journal of the National Science Foundation of Sri Lanka*, 51(2), 183–184. <https://doi.org/10.4038/jnsfsr.v51i2.11747>
- Setiyo, M., & Rochman, M. L. (2023). Literature review: An effective method for identifying science and technology updates. *Mechanical Engineering for Society and Industry*, 3(3), 114–118. <https://doi.org/10.31603/mesi.10787>
- Seyedghorban, Z., Samson, D., & Tahernejad, H. (2020). Digitalization opportunities for the procurement function: Pathways to maturity. *International Journal of Operations &*

- Production Management*, 40(11), 1685–1693. <https://doi.org/10.1108/IJOPM-04-2020-0214>
- Sha, M., & Gabel, T. J. (2020). The essential role of language in survey research. In *Research methods in linguistics* (pp. 185–206). Cambridge University Press.
- Shaavadze, G. (2021). Digital transformation and bank performance: The role of IT capabilities in emerging markets. *Cogent Business & Management*, 8(1), Article 1923350. <https://doi.org/10.1080/23311975.2021.1923350>
- Shambira, L. (2020). Exploring the adoption of artificial intelligence in the Zimbabwe banking sector. *European Journal of Social Sciences*, 5(6), 110–124. <https://doi.org/10.46827/ejsss.v5i6.942>
- Shameem, B., Kumar, P., Vij, A., Vij, M., Al Shehri, S., & Alzoubi, H. M. (2024). Assessing the adoption of technology in banking services in India: A structural equation modeling analysis. In *2024 2nd International Conference on Cyber Resilience (ICCR)* (pp. 1–6). IEEE. <https://doi.org/10.1109/ICCR61006.2024.10533065>
- Shanti, R., Siregar, H., Zulfainarni, N., & Tony. (2023). Role of digital transformation on digital business model banks. *Sustainability*, 15(23), Article 16293. <https://doi.org/10.3390/su152316293>
- Sharma, D. K. (2023). Relevance of philosophical approach to values in social science to maritime research. *International Journal on Marine Navigation and Safety of Sea Transportation*, 17(3), 643–650. <https://doi.org/10.12716/1001.17.03.16>
- Sharma, M., & Sharma, S. (2023). A holistic approach to remote patient monitoring, fueled by ChatGPT and Metaverse technology: The future of nursing education. *Nurse Education Today*, 131, Article 105972. <https://doi.org/10.1016/j.nedt.2023.105972>

- Shashikala, K. (2019). Digital disruption in banking industry. *International Journal of Social and Economic Research*, 9(3), 56–64. <https://doi.org/10.5958/2249-6270.2019.00019.9>
- Shedid, M., Cunningham, J., Connon, N., & Pirie, E. (2024). The impact of rapid digital transformation on employee empowerment: Evidence from the UAE banking sector. *International Journal of Business and Applied Social Science*, 10(1), 18–28. <https://doi.org/10.33642/ijbass.v10n1p2>
- Shehadeh, M., Almohtaseb, A., Aldehayyat, J., & Abu-AlSondos, I. A. (2023). Digital transformation and competitive advantage in the service sector: A moderated-mediation model. *Sustainability*, 15(3), Article 2077. <https://doi.org/10.3390/su15032077>
- Shehadeh, M., Dmaithan, A. A., Almajali, I., Abu-AlSondos, I. A., Alkhwalidi, A. F., & Al-Gasaymeh, A. S. (2023). Digital transformation and its impact on operational efficiency and competitive advantage in Islamic banks. In *2023 International Conference on Business Analytics for Technology and Security (ICBATS)* (pp. 1–6). IEEE. <https://doi.org/10.1109/ICBATS57792.2023.10111266>
- Sheikh, H., Prins, C., & Schrijvers, E. (2023). Artificial intelligence: Definition and background. In *Mission AI: The new system technology* (pp. 15–41). Springer. https://doi.org/10.1007/978-3-031-21448-6_2
- Shi, D., Rao, H., & Elbagory, K. (2024). A study of the impact of digital transformation on the stability of banks. In *Proceedings of the 9th International Conference on Financial Innovation and Economic Development (ICFIED 2024)* (pp. 389–395). Atlantis Press. https://doi.org/10.2991/978-94-6463-408-2_6
- Shodmanov, B. E. (2024). Significance of the study and research questions. *International Journal of Advances in Scientific Research*, 4(3), 78–85. <https://doi.org/10.37547/ijasr-04-03-10>

- Shwede, F., Aburayya, A., & Mansour, M. (2023). The impact of organizational digital transformation on employee performance: A study in the UAE. *Migration Letters*, 20(S5), 1260–1274. <https://doi.org/10.59670/ml.v20iS5.4506>
- Sia, S. K., Weill, P., & Zhang, N. (2021). Designing a future-ready enterprise: The digital transformation of DBS Bank. *California Management Review*, 63(3), 125–147. <https://doi.org/10.1177/0008125621992583>
- Singgih, D., Widodo, N., Rubiyanti, A., & Silvianita, A. (2024). The role of digital transformation in improving employee performance. *Journal of International Conference Proceedings*, 7(1), 397–404. <https://doi.org/10.32535/jicp.v7i1.3181>
- Singh, S., Sharma, M., & Dhir, S. (2021). Modeling the effects of digital transformation in Indian manufacturing industry. *Technology in Society*, 67, Article 101763. <https://doi.org/10.1016/j.techsoc.2021.101763>
- Sivasamy, S. (2023). Sample size considerations in research. *Endodontology*, 35(4), 304–308. https://doi.org/10.4103/endo.endo_235_23
- Slavković, M., Pavlović, K., Mamula Nikolić, T., Vučenović, T., & Bugarčić, M. (2023). Impact of digital capabilities on digital transformation: The mediating role of digital citizenship. *Systems*, 11(4), Article 172. <https://doi.org/10.3390/systems11040172>
- Smith, A. J. H. (2024). Ethical considerations in practitioner research. In *Advances in higher education and professional development* (pp. 28–47). IGI Global. <https://doi.org/10.4018/979-8-3693-1499-9.ch002>
- Smith, J. (2018). Technology infrastructure as an enabler of digital transformation in banking: A systematic review. *Journal of Information Systems and Technology Management*, 15(1), Article e20180001. <https://doi.org/10.4301/S1807-17752018000100001>

- Smith, M., Witte, M., Rocha, S., & Basner, M. (2019). Effectiveness of incentives and follow-up on increasing survey response rates and participation in field studies. *BMC Medical Research Methodology*, *19*, Article 230. <https://doi.org/10.1186/s12874-019-0868-8>
- Soelistyoningrum, J. N., Marcelya, M., & Putri, N. K. (2023). Exploring financial approaches to evaluate commercial bank profitability: An empirical analysis on capital adequacy ratio, loan deposit ratio and non-performing loans. *JMBE of Management*, *1*(1), 10–25. <https://doi.org/10.21070/jmbem.v1i1.1626>
- Soesilo, R., & Tampubolon, L. R. R. U. (2023). Transformation and digitalization of MSMEs to increase productivity, added value and downstreaming of strategic food and industry. *Journal of Multidisciplinary Research*, *2*(3), 757–766. <https://doi.org/10.3390/jmr2030043>
- Solberg, E., Traavik, L. E., & Wong, S. I. (2020). Digital mindsets: Recognizing and leveraging individual beliefs for digital transformation. *California Management Review*, *62*(4), 105–124. <https://doi.org/10.1177/0008125620931831>
- Sousa, M. J., de Barros, G. O., & Tavares, N. (2021). Artificial intelligence a driver for digital transformation. In M. J. Sousa & G. O. de Barros (Eds.), *Handbook of research on digital transformation and challenges to data security and privacy* (pp. 237–253). IGI Global. <https://doi.org/10.4018/978-1-7998-4201-9.ch014>
- Sousa-Zomer, T. T., Neely, A., & Martinez, V. (2020). Digital transforming capability and performance: A microfoundational perspective. *International Journal of Operations & Production Management*, *40*(7/8), 1095–1128. <https://doi.org/10.1108/IJOPM-08-2019-0555>

- Spake, R., O’Dea, R. E., Nakagawa, S., Doncaster, C. P., Ryo, M., Callaghan, C. T., & Bullock, J. M. (2022). Improving quantitative synthesis to achieve generality in ecology. *Nature Ecology & Evolution*, 6(12), 1818–1828. <https://doi.org/10.1038/s41559-022-01891-z>
- Spitzer, V., & Wimmer, M. A. (2021). User needs for a mobility app to support living in rural areas. In N. Edelman, P. Parycek, & M. Sachs (Eds.), *Electronic participation* (pp. 77–89). Springer. https://doi.org/10.1007/978-3-030-82824-0_7
- Srini, K. (2023). Evolving consumer expectations and the future of digital banking. *Journal of Digital Banking*, 7(3), 243–256. <https://doi.org/10.69554/LURA3454>
- Stei, G., Rossmann, A., & Szász, L. (2023). How knowledge-intensive organizations thrive under dynamic conditions: An organizational capability perspective. *Proceedings of the 24th European Conference on Knowledge Management*, 24(2), 1607–1615. <https://doi.org/10.34190/eckm.24.2.1479>
- Stephen, J., John, J., & Jeffrey, J. (2022). Experimental research designs. In *Research design and methodology* (pp. 87–104). Springer. https://doi.org/10.1007/978-3-030-94577-0_6
- Sternberg, D. A. (1981). *A complete dissertation: The big picture*. Scarecrow Press.
- Stratton, S. J. (2023). Population sampling: Probability and non-probability techniques. *Prehospital and Disaster Medicine*, 38(2), 147–148. <https://doi.org/10.1017/S1049023X23000304>
- Suddaby, R., Coraiola, D., Harvey, C., & Foster, W. (2020). History and the micro-foundations of dynamic capabilities. *Strategic Management Journal*, 41(3), 530–556. <https://doi.org/10.1002/smj.3098>
- Suresh, C. (2021). Impact of the digital transformation process on bank relationships with customers. In T. Esakki (Ed.), *Managerial issues in digital transformation of global*

- modern corporations* (pp. 61–68). IGI Global. <https://doi.org/10.4018/978-1-7998-2402-2.ch005>
- Surmiak, A. (2020). Should we maintain or break confidentiality? The choices made by social researchers in the context of law violation and harm. *Journal of Academic Ethics*, 18(3), 229–247. <https://doi.org/10.1007/s10805-019-09336-2>
- Sürücü, L., & Maslakçı, A. (2020). Validity and reliability in quantitative research. *Business and Management Studies: An International Journal*, 8(3), 2694–2726. <https://doi.org/10.15295/bmij.v8i3.1540>
- Sutanto, A., Febriansyah, W., & Ermawati, W. J. (2024). Digital transformation and state-owned bank's performance: The moderating effect of risk preference. *Jurnal REP (Riset Ekonomi Pembangunan)*, 9(1), 101–116. <https://doi.org/10.31002/rep.v9i1.155>
- Swarooprani, K. (2022). A study of research methodology. *International Journal of Scientific Research in Science, Engineering and Technology*, 9(3), 537–543. <https://doi.org/10.32628/IJSRSET2293175>
- Swathika, P. (2024). Innovation in banking through data science. In *Advances in data science and banking* (pp. 45–67). <https://doi.org/10.58532/v3bdai2p2ch5>
- Syed, R., Bandara, W., & Eden, R. (2022). Public sector digital transformation barriers: A developing country experience. *Information Polity*, 28(1), 5–27. <https://doi.org/10.3233/IP-220017>
- Szafir, M. F. (2023). Digital transformation enabled by big data. In *IEEE Technology and Engineering Management Society Body of Knowledge (TEMSBOK)* (pp. 297–329). Wiley.

- Tabrizi, B., Lam, E., Girard, K., & Irvin, V. (2019, March 13). Digital transformation is not about technology. *Harvard Business Review*. <https://hbr.org/2019/03/digital-transformation-is-not-about-technology>
- Taherdoost, H. (2016). Sampling methods in research methodology; How to choose a sampling technique for research. *International Journal of Academic Research in Management*, 5(2), 18–27. <https://hal.archives-ouvertes.fr/hal-02546796>
- Taherdoost, H. (2023). A review of Technology Acceptance Model: Beginnings, developments, and future. *Journal of Industrial Information Integration*, 29, Article 100413. <https://doi.org/10.1016/j.jii.2022.100413>
- Tahir, S. R. (2024). Reliability and validity of mixed methods research. In A. Rahal & M. Adorján (Eds.), *Design and validation of research tools and methodologies* (pp. 155–162). IGI Global. <https://doi.org/10.4018/979-8-3693-1135-6.ch008>
- Taj, F., Kautz, K., & Bruno, V. (2021). The coevolution of routines and IT systems in IT-enabled organizational transformation as an instance of digital transformation: A social constructivist perspective. *Australasian Journal of Information Systems*, 25, Article 2855. <https://doi.org/10.3127/ajis.v25i0.2855>
- Tan, N. N., Huynh, T. T. N., Nguyen, S. H., & Le, H. A. (2021). The impact of digital transformation on the economic growth of the countries. In N. T. Nguyen, T. H. Doan, D. T. Nguyen, & K. Vladik (Eds.), *Prediction and causality in econometrics and related topics* (pp. 133–145). Springer. https://doi.org/10.1007/978-3-031-11311-0_10
- Tanda, A., & Schena, C.-M. (2019). Bank strategies in the light of the digitalisation of financial activities. In *FinTech, BigTech and banks* (pp. 51–81). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-22426-4_4

- Tanwar, S., Raboaca, M. S., & Leung, C. L. A. (2022). Design and experience of mobile applications: A pilot survey. *Mathematics*, *10*(14), Article 2380. <https://doi.org/10.3390/math10142380>
- Tavakol, M., & Wetzel, A. P. (2020). Factor analysis: A means for theory and instrument development in support of construct validity. *International Journal of Medical Education*, *11*, 245–247. <https://doi.org/10.5116/ijme.5f96.0f4a>
- Taylor, S. P. (2017). What is innovation? A study of the definitions, academic models and applicability of innovation to an example of social housing in England. *Open Journal of Social Sciences*, *5*(11), 128–146. <https://doi.org/10.4236/jss.2017.511010>
- Teece, D. J. (2007). Explicating dynamic capabilities: The nature and micro-foundations of (sustainable) enterprise performance. *Strategic Management Journal*, *28*(13), 1319–1350. <https://doi.org/10.1002/smj.640>
- Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning*, *51*(1), 40–49. <https://doi.org/10.1016/j.lrp.2017.06.007>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- Teglasi, H., Fleece, H. M., Havewala, M. C., & Bali, D. (2023). The concept of validity in psychological assessment. In *Oxford bibliographies in psychology*. Oxford University Press. <https://doi.org/10.1093/obo/9780199828340-0304>

- Teichert, R., Helmel, M., & Kosa, M. (2019). Digital transformation maturity: A systematic review of literature. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 67(6), 1673–1687. <https://doi.org/10.11118/actaun201967061673>
- Tekle, K. C., & Kumar, K. A. (2024). Mastering digital transformation: Insights into trends, challenges, and strategic opportunities. *Journal of Investment, Banking and Finance*, 2(1), 1–8. <https://doi.org/10.33140/jibf.02.01.26>
- Testor, K. (2020). Limitation of validity. In *Theoretical foundations of creativity* (pp. 179–181). Springer. https://doi.org/10.1007/978-3-030-61736-3_10
- The Reserve Bank of Zimbabwe. (2023). *Banking sector report for the quarter ended 30 September 2023*. <https://www.rbz.co.zw/index.php/regulation-supervision/regulation-supervision/banking-institutions>
- The Reserve Bank of Zimbabwe. (2023, February 2). *2023 monetary policy statement: Sustaining price stability and economic resilience*. <https://www.rbz.co.zw/index.php/publications/monetary-policy-statements>
- Theiri, S., & Hadoussa, S. (2024). Digitization effects on banks' financial performance: The case of an African country. *Competitiveness Review*, 34(1), 144–162. <https://doi.org/10.1108/CR-10-2022-0147>
- Thomas, C. G. (2021). Approaches to research. In *Research methodology and scientific writing* (pp. 43–71). Springer. https://doi.org/10.1007/978-3-030-64865-7_3
- Thommandru, A. (2021). Impact of artificial intelligence on e-banking and financial technology development. *ECS Transactions*, 107(1), 16469–16476. <https://doi.org/10.1149/10701.16469ecst>

- Thompson, D. L. (2022). Data analysis. In *Conducting undergraduate research in education* (1st ed.). Routledge. <https://doi.org/10.4324/9781003226475-7>
- Thuy, N. T. V. (2020). Strategy, culture, human resource, IT capability, digital transformation and firm performance—evidence from Vietnamese enterprises. *Studies in Computational Intelligence*, 897, 237–252. https://doi.org/10.1007/978-3-030-49728-6_16
- Tian, C. (A.), Santhanam, R., & Nitiema, P. (2023). Revisiting the role and impact of information technology capability. *AIS Transactions on Replication Research*, 9(1), 4. <https://doi.org/10.17705/1attr.00081>
- Tiburtino, E. B., Sagawa, J. K., Barbosa, G. F., & Longo, F. (2023). *Barriers to Industry 4.0 in manufacturing companies: Identification, categorization and analysis of challenges* [Preprint]. SSRN. <https://doi.org/10.2139/ssrn.4519716>
- Tiwari, S. P. (2022). *Knowledge enhancement and mobile technology: Improving effectiveness and efficiency*. arXiv. <https://doi.org/10.48550/arXiv.2208.04706>
- Tran, C. P., Pernia, R. A., & Nguyen-Thanh, N. (2023). Mess or match? How do academic perspectives meet the practitioner perspectives in terms of digital transformation? *Technological Forecasting and Social Change*, 191, 122433. <https://doi.org/10.1016/j.techfore.2023.122433>
- Tran, L. Q. T., Phan, D. T., Herdon, M., & Kovács, L. (2022). Assessing the DT in two banks: Case study in Hungary. **AGRIS on-line Papers in Economics and Informatics*, 14*(2), 121–134. <https://doi.org/10.7160/aol.2022.140210>
- Tran, P. T., Le, T., & Phan, N. (2023). Digital transformation of the banking industry in developing countries. *International Journal of Business Review*, 8(5), 1–24. <https://doi.org/10.26668/businessreview/2023.v8i5.1503>

- Tran, Q. H. (2021). Organisational culture, leadership behaviour and job satisfaction in the Vietnam context. *International Journal of Organizational Analysis*, 29(1), 136–154. <https://doi.org/10.1108/IJOA-09-2019-1879>
- Tran, T. T., & Gandolfi, F. (2020). Implementing Lewin's change theory for institutional improvements: A Vietnamese case study. *Journal of Management Research*, 20(4), 199–210. <https://www.proquest.com/scholarly-journals/implementing-lewins-change-theory-institutional/docview/2544286753/se-2>
- Trener, B., Chng, S., Wang, Y., Suhaila, Z. S., Lim, S. S., Lu, H. Y., & Oh, P. H. (2021). Preparing workplaces for digital transformation: An integrative review and framework of multi-level factors. *Frontiers in Psychology*, 12, 620766. <https://doi.org/10.3389/fpsyg.2021.620766>
- Tsaurai, K. (2018). The dynamics, challenges and transition of banking sector development in Zimbabwe. *Journal of Developing Areas*, 52(3), 85–96. <https://doi.org/10.1353/jda.2018.0038>
- Turuev, I. B., & Shashkina, E. O. (2023). Methodological approach to the assessment of the national banking sector transformation under the influence of fintech. *RUDN Journal of Economics*, 31(2), 299–315. <https://doi.org/10.22363/2313-2329-2023-31-2-299-315>
- Tusting, K. (2022). Surveys, questionnaires, interviews and focus groups. In *Research methods in linguistics*. Routledge. <https://doi.org/10.4324/9781003045571-27>
- Tuukkanen, V., Wolgsjö, E., & Rusu, L. (2022). Cultural values in digital transformation in a small company. *Procedia Computer Science*, 196, 3–12. <https://doi.org/10.1016/j.procs.2021.11.066>

- Udovita, P. V. M. V. D. (2020). Conceptual review on dimensions of digital transformation in modern era. *International Journal of Scientific and Research Publications*, 10(2), 520–529. <https://doi.org/10.29322/IJSRP.10.02.2020.p9873>
- Unruh, G., & Kiron, D. (2017). *Digital transformation on purpose*. MIT Sloan Management Review. <https://sloanreview.mit.edu/the-path-to-digital-transformation/>
- Uribe-Linares, G. P., Rios-Lama, C. A., & Vargas-Merino, J. A. (2023). Is there an impact of digital transformation on consumer behaviour? An empirical study in the financial sector. *Economies*, 11(5), 132. <https://doi.org/10.3390/economies11050132>
- Valdez-Juárez, L. E., & Castillo-Vergara, M. (2021). Technological capabilities, open innovation, and eco-innovation: Dynamic capabilities to increase corporate performance of SMEs. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(1), 8. <https://doi.org/10.3390/joitmc7010008>
- Valli, R. (2016). Creating a questionnaire for a scientific study. *International Journal of Research Studies in Education*, 5(2), 107–114. <https://doi.org/10.5861/ijrse.2016.1584>
- van Tonder, C., Schachtebeck, C., Nieuwenhuizen, C., & Bossink, B. (2020). A framework for digital transformation and business model innovation. *Journal of Contemporary Management Issues*, 25(2), 111–132. <https://doi.org/10.30924/mjcmi.25.2.6>
- Varma, P., Nijjer, S., Sood, K., Grima, S., & Rupeika-Apoga, R. (2022). Thematic analysis of financial technology (Fintech) influence on the banking industry. *Risks*, 10(10), 186. <https://doi.org/10.3390/risks10100186>
- Vedapradha, R., & Hariharan, R. (2021). Innovation in banking: Fusion of artificial intelligence and blockchain. *Asia Pacific Journal of Innovation and Entrepreneurship*, 15(1), 51–61. <https://doi.org/10.1108/APJIE-09-2020-0142>

- Venkatraman, N., & Ramanujam, V. (1986). Measurement of business performance in strategy research: A comparison of approaches. *Academy of Management Review*, *11*(4), 801–814. <https://doi.org/10.5465/amr.1986.4283976>
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, *122*, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Verma, D., & Chakarwarty, Y. (2023). Impact of bank competition on financial stability-a study on Indian banks. *Competitiveness Review*, *34*(2), 277–304. <https://doi.org/10.1108/CR-07-2022-0102>
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems*, *28*(2), 118–144. <https://doi.org/10.1016/j.jsis.2019.01.003>
- Vikas, H., Shetty, V., Apoorva, K., & Nikhitha, K. V. (2022). Digital revolution in the Indian banking sector. *International Journal of Social and Economic Research*, *8*(6), 26–29. <https://doi.org/10.5958/2249-6270.2019.00015.1>
- Viviane, M. J., & Robinson, J. (2014). Reducing the research-practice gap through problem-based methodology. In A. Reid, E. Hart, & M. Peters (Eds.), *A companion to research in education* (pp. 533–537). Springer Netherlands.
- Volberda, H., Khanagha, S., Fuller, C. B., Mihalache, O., & Birkinshaw, J. (2021). Strategizing in a digital world: Overcoming cognitive barriers, reconfiguring routines and introducing new organizational forms. *Long Range Planning*, *54*(5), 102110. <https://doi.org/10.1016/j.lrp.2021.102110>

- Von Solms, J., & Langerman, J. (2022). Digital technology adoption in a bank Treasury and performing a digital maturity assessment. *African Journal of Science, Technology, Innovation and Development*, 14(2), 302–315. <https://doi.org/10.1080/20421338.2020.1857519>
- Vuković, M., Pivac, S., & Kundid, D. (2019). Technology Acceptance Model for the Internet Banking Acceptance in Split. *Business Systems Research Journal*, 10(2), 124–140. <https://doi.org/10.2478/bsrj-2019-0022>
- Wadajo, F. T., & Kero, C. A. (2023). Knowledge-based dynamic capabilities and competitive advantage: In case of Commercial Bank of Ethiopia. *Information and Knowledge Management*, 13(7), 32–38. <https://doi.org/10.7176/ikm/13-7-04>
- Wade, M., Macaulay, J., Noronha, A., & Barbier, J. (2019). *Orchestrating transformation: How to deliver winning performance with a connected approach to change*. IMD. <https://www.imd.org/research-knowledge/disruption/books/orchestrating-transformation>
- Wade, M., Noronha, A., Macaulay, J., & Barbier, J. (2017). *Orchestrating digital business transformation*. Global Center for Digital Business Transformation. <https://www.imd.org/research-knowledge/digital/reports/digital-orchestra>
- Wadesango, N., & Magaya, B. (2020). The impact of digital banking services on the performance of commercial banks. *Journal of Management Information and Decision Sciences*, 23(S1), 343–353. <https://www.abacademies.org/articles/the-impact-of-digital-banking-services-on-performance-of-commercial-banks-1532-5806-23-S1-204.pdf>

- Wagener, S. (2023). Accounting for the middle: Motivations, extent, and limitations of middle managers' earnings management. *Journal of Business Economics*, 94(2), 225–277. <https://doi.org/10.1007/s11573-023-01162-8>
- Wang, H., Feng, J., Zhang, H., & Li, X. (2020). The effect of digital transformation strategy on performance: The moderating role of cognitive conflict. *International Journal of Conflict Management*, 31(3), 441–462. <https://doi.org/10.1108/IJCMA-09-2019-0166>
- Wang, P. (2023). Digital transformation of financial institutions. In *Digital transformation in financial services* (pp. 45–67). Routledge. <https://doi.org/10.4324/9781003310082-6>
- Wang, T. (2023). Research on the impact of E-commerce on offline retail industry. *Frontiers in Business, Economics and Management*, 10(1), 169–173. <https://doi.org/10.54097/fbem.v10i1.10237>
- Wang, W., & Guarino, A. S. (2021). A case study in crisis management in the digital transformation era: Wells Fargo & Company. *European Journal of Business and Management Research*, 6(4), 127–130. <https://doi.org/10.24018/ejbmr.2021.6.4.911>
- Wang, X. (2024). Research on the digital transformation of the financial industry. *Highlights in Business, Economics and Management*, 24, 1786–1791. <https://doi.org/10.54097/582g8r55>
- Wang, X., Gu, Y., Ahmad, M., & Xue, C. (2022). The impact of digital capability on manufacturing company performance. *Sustainability*, 14(10), 6214. <https://doi.org/10.3390/su14106214>
- Wang, Y. A., & Rhemtulla, M. (2021). Power analysis for parameter estimation in structural equation modeling: A discussion and tutorial. *Advances in Methods and Practices in*

- Psychological Science*, 4(1), Article
2515245920918253. <https://doi.org/10.1177/2515245920918253>
- Wardhani, R. A. A., & Wang, G. (2022). Digital transformation planning based on big data technology (Case study: XYZ Bank). *JAMIKA*, 12(2). <https://doi.org/10.34010/jamika.v12i2.7876>
- Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), 326–349. <https://doi.org/10.1016/j.lrp.2018.12.001>
- Weber, E., Büttgen, M., & Bartsch, S. (2022). How to take employees on the digital transformation journey: An experimental study on complementary leadership behaviors in managing organizational change. *Journal of Business Research*, 143, 225–238. <https://doi.org/10.1016/j.jbusres.2022.01.036>
- Webster-Clark, M., Ross, R. K., Keil, A. P., & Platt, R. W. (2024). Variable selection when estimating effects in external target populations. *American Journal of Epidemiology*, 193(8), 1176–1181. <https://doi.org/10.1093/aje/kwae048>
- Werder, K., & Richter, J. (2022). A meta-analysis on the effects of IT capability toward agility and performance: New directions for information systems research. *PLOS ONE*, 17(10), e0268761. <https://doi.org/10.1371/journal.pone.0268761>
- Werner, S. (2023). Questionnaire design. In *Research methods in linguistics*. Edward Elgar Publishing. <https://doi.org/10.4337/9781800376175.00007>
- Wewege, L., Lee, J., & Thomsett, M. C. (2020). Disruptions and digital banking trends. *Journal of Applied Finance & Banking*, 10(6), 1–2. https://ideas.repec.org/a/spt/apfiba/v10y2020i6f10_6_2.html

- Widodo, S. D., Rubiyanti, N., Widodo, A., & Silvianita, A. (2024). The role of digital transformation in improving employee performance. *Journal of International Conference Proceedings*, 7(1), 109–118. <https://doi.org/10.32535/jicp.v7i1.3181>
- Wiesböck, F. (2019). *Innovating in a digital world—the role of digital product innovation capabilities* [Paper presentation]. 27th European Conference on Information Systems (ECIS), Stockholm & Uppsala, Sweden. https://aisel.aisnet.org/ecis2019_rp/46/
- Wiley, A., McCormac, A., & Calic, D. (2020). More than the individual: Examining the relationship between culture and Information Security Awareness. *Computers & Security*, 88, 101640. <https://doi.org/10.1016/j.cose.2019.101640>
- Wiśniowski, A., Sakshaug, J. W., Ruiz, D. A. P., & Blom, A. G. (2020). Integrating probability and nonprobability samples for survey inference. *Journal of Survey Statistics and Methodology*, 8(1), 120–147. <https://doi.org/10.1093/jssam/smz051>
- Witschel, D., Müller, J. M., & Voigt, K.-I. (2023). What takes the wind out of their sails? A micro-foundational perspective of challenges for building dynamic capabilities towards digital business model innovation. *Schmalenbach Journal of Business Research*, 75, 345–388. <https://doi.org/10.1007/s41471-023-00163-1>
- Woods, S. B., Chambers, T.-N. G., & Eizadirad, A. (2022). Emotional vulnerability in researchers conducting trauma-triggering research. *Journal of Higher Education Policy and Leadership Studies*, 3(3), 71–88. <https://doi.org/10.52547/johepal.3.3.71>
- World Bank Group. (2020). *Digital economy for Zimbabwe: Country diagnostic report*.
- Wu, J., Wang, N., & Wang, Z. (2017). Impact of information technology capability on financial performance during the period of economic downturn: The case of Chinese listed

- companies. *Electronic Commerce Research*, 17(3), 403–423. <https://doi.org/10.1007/s10660-016-9248-1>
- Wu, L. F., Huang, I. C., Huang, W. C., & Du, P. L. (2019). Aligning organizational culture and operations strategy to improve innovation outcomes: An integrated perspective in organizational management. *Journal of Organizational Change Management*, 32(2), 224–250. <https://doi.org/10.1108/JOCM-03-2018-0073>
- Wu, X., & Cheng, G. (2024). The performance and stability of financial institutions after digital transformation: The importance of regional policies. *Finance Research Letters*, 65, 105671. <https://doi.org/10.1016/j.frl.2024.105671>
- Wu, Z. (2024). Research on the impact of digital transformation on the business performance of commercial banks. *Proceedings of Business and Economic Studies*, 7(3), 227–235. <https://doi.org/10.26689/pbes.v7i3.7491>
- Xiang, L. (2022). Obtaining informed consent for research studies. *Journal of Ethical Research*, 15(3), 123–138. <https://doi.org/10.1201/9781003126478-9>
- Xiang, X., & Jiang, L. (2023). Digitalisation and commercial bank performance: A test of heterogeneity from Chinese commercial banks. *Finance Research Letters*, 54, 104303. <https://doi.org/10.1016/j.frl.2023.104303>
- Xie, C. (2022). Intelligent evaluation method of bank digital transformation credibility based on big data analysis. *Journal of Computational Methods in Sciences and Engineering*, 22(4), 1349–1359. <https://doi.org/10.3233/JCM-226060>
- Xie, H. (2023). The applications of big data analysis in the credit business of commercial banks. *BCP Business & Management*, 38, 3226–3231. <https://doi.org/10.54691/bcpbm.v38i.4256>

- Xie, X. (2022). The digitization of commercial banks. In D. Dollar & Y. Huang (Eds.), *The digital financial revolution in China* (pp. 183–214). Brookings Institution Press.
- Xie, X., & Wang, S. (2023). Digital transformation of commercial banks in China: Measurement, progress and impact. *China Economic Quarterly International*, 3(1), 34–45. <https://doi.org/10.2139/ssrn.4355883>
- Xinran, C., Boyu, H., Yiping, H., & Xuanli, X. (2022). Digital transformation and risk differentiation in the banking industry: Evidence from Chinese commercial banks. *Asian Economic Papers*, 21(3), 1–21. https://doi.org/10.1162/asep_a_00853
- Xu, A., Baysari, M. T., Stocker, S. L., Le, T., Day, R. O., & Carland, J. E. (2020). Researchers' views on, and experiences with, the requirement to obtain informed consent in research involving human participants: A qualitative study. *BMC Medical Ethics*, 21, 93. <https://doi.org/10.1186/s12910-020-00538-7>
- Yaaqub, A. H., & Ahmed, R. A. (2023). The impact of information technology on the performance of commercial banks through the faithful representation of accounting information system. *International Journal of Professional Business Review*, 8(9), e01758. <https://doi.org/10.26668/businessreview/2023.v8i9.1758>
- Yadav, A. (2021). How artificial intelligence is transforming the banking industry: Data analysis review. *International Journal of Advanced Research in Science, Communication and Technology*, 7(2), 1–6. <https://doi.org/10.48175/IJARSCT-1707>
- Yam, S. P. (2022). Philosophy in art research. *Journal of Fine Arts Campus*, 4(1), 12–17. <https://doi.org/10.3126/jfac.v4i1.51743>
- Yam, Y., & Sharma, S. (2022). Composition of a research paper. *Journal of Fine Arts Campus*, 4(2). <https://doi.org/10.3126/jfac.v4i2.54836>


- Yang, W., Sui, X., & Zhang, Q. (2021). Can fintech improve the efficiency of commercial banks? —An analysis based on big data. *Research in International Business and Finance*, 55, 101338. <https://doi.org/10.1016/j.ribaf.2020.101338>
- Yang, Y., Zhang, X., & Cao, J. (2020). Applying Schumpeter's theory of innovation in the digital transformation of the banking industry. *Journal of Open Innovation: Technology, Market, and Complexity*, 6(4), 123. <https://doi.org/10.3390/joitmc6040123>
- Yang, Z., Zhang, Y., & Zhang, T. (2023). Leveraging digitalization and servitization to improve financial performance. *Production Planning & Control*. Advance online publication. <https://doi.org/10.1080/09537287.2023.2229263>
- Yu, J., Wang, J., & Moon, T. (2022). Influence of digital transformation capability on operational performance. *Sustainability*, 14(13), 7909. <https://doi.org/10.3390/su14137909>
- Yum, J. (2000). The relationships among environmental turbulence, strategic aggressiveness of information technology, organizational information technology capability and organizational performance. *Strategic Management Journal*, 21(4), 271–279. [https://doi.org/10.1002/\(SICI\)1097-0266\(200004\)21:4<271::AID-SMJ96>3.0.CO;2-7](https://doi.org/10.1002/(SICI)1097-0266(200004)21:4<271::AID-SMJ96>3.0.CO;2-7)
- YuSheng, K., & Ibrahim, M. (2020). Innovation capabilities, innovation types, and firm performance: Evidence from the banking sector of Ghana. *SAGE Open*, 10(2). <https://doi.org/10.1177/2158244020920892>
- Zain, Z. S., & Christian, T. F. (2023). The influence of technology acceptance model (TAM) theory on intention to reuse mobile banking with customer satisfaction as intervening variable (Case study of BRIMO application in workers PT. Bank Rakyat Indonesia Kantor Wilayah

- Surabaya). *International Journal of Review Management Business and Entrepreneurship*, 3(1), 218–228. <https://doi.org/10.37715/rmbe.v3i1.4233>
- Zehir, C., Karaboğa, T., & Başar, D. (2020). The transformation of human resource management and its impact on overall business performance: Big data analytics and AI technologies in strategic HRM. In U. Hacıoglu (Ed.), *Digital business strategies in blockchain ecosystems* (pp. 265–281). Springer. https://doi.org/10.1007/978-3-030-29739-8_12
- Zhai, Z. (2024). Research on the impact of digital financial technology on the business model transformation of commercial banks. *Frontiers in Business, Economics and Management*, 2(1), 45–60. <https://doi.org/10.54097/ywe6cw68>
- Zhang, B., Mildenberger, M., Howe, P. D., Marlon, J., Rosenthal, S. A., & Leiserowitz, A. (2020). Quota sampling using Facebook advertisements. *Political Science Research and Methods*, 8(3), 558–564. <https://doi.org/10.1017/psrm.2018.49>
- Zhang, C., Wang, Y., & Zhang, Y. (2024). Can digital transformation improve commercial banks' performance? *Journal of Technology Transfer*. Advance online publication. <https://doi.org/10.1007/s10961-024-10139-w>
- Zhang, J. Z., & Hon, H. W. (2020). Embracing digital transformation as-a-service. *California Management Review*. <https://cmr.berkeley.edu/assets/documents/pdf/2020-02-digital-transformation-as-a-service.pdf>
- Zhang, X., Wei, X., Ou, C. X. J., Caron, E., Zhu, H., & Xiong, H. (2022). From human-AI confrontation to human-AI symbiosis in society 5.0: Transformation challenges and mechanisms. *IT Professional*, 24(3), 43–51. <https://doi.org/10.1109/MITP.2022.3175512>

- Zhao, X., Chen, Q., Yuan, X., Yu, Y., & Zhang, H. (2024). Study on the impact of digital transformation on the innovation potential based on evidence from Chinese listed companies. *Scientific Reports*, *14*, 8241. <https://doi.org/10.1038/s41598-024-56345-2>
- Zhou, Z. (2023). Research on technology innovation and efficiency improvement correlation with bank performance based on data envelopment analysis. In *Proceedings of the 7th International Conference on Intelligent Information Processing* (Article 12, pp. 1–9). <https://doi.org/10.1145/3570236.3570249>
- Zhu, Y., & Jin, S. (2023). How does the digital transformation of banks improve efficiency and environmental, social, and governance performance? *Systems*, *11*(7), 328. <https://doi.org/10.3390/systems11070328>
- Zimbabwe National Statistics Agency. (2024, May 23). *2024 third quarter QLFS presentation* [PDF]. https://www.zimstat.co.zw/wp-content/uploads/Macro/Labor-force/2024_THIRD_QUARTER_QLFS_PRESENTATION_23052024.pdf
- Zuo, L., Li, H., & Xia, X. (2023). An empirical analysis of the impact of digital finance on the efficiency of commercial banks. *Sustainability*, *15*(5), 4667. <https://doi.org/10.3390/su15054667>
- Zuo, L., Strauss, J., & Zuo, L. (2021). The digitalization transformation of commercial banks and its impact on sustainable efficiency improvements through investment in science and technology. *Sustainability*, *13*(19), 11028. <https://doi.org/10.3390/su131911028>
- Zyphur, M. J., & Pierides, D. C. (2019). Statistics and probability have always been value-laden: An historical ontology of quantitative research methods. *Journal of Business Ethics*, *167*(1), 1–18. <https://doi.org/10.1007/s10551-019-04187-8>

APPENDICES

Appendix A: UREC Provisional Approval

	UREC Decision, Version 2.0
Unicaf University Research Ethics Committee Decision	
Student's Name: Tendai Panaliche	
Student's ID #: R2106D12283801	
Supervisor's Name: Dr Acad Hassan Butt	
Program of Study: UU-DBA-800-1	
Offer ID /Group ID: O47887G48143	
Dissertation Stage: D81	
Research Project Title:	
An Evaluation of the Digital Transformation Framework for the Commercial Banking Industry in Zimbabwe	
 Comments: No comments.	
 Decision*: A. Provisionally approved without revision or comments	
 Date: 07 Mar 2023	
<small>*Provisional approval provided at the Dissertation Stage 1, whereas the final approval is provided at the Dissertation stage 3. The student is allowed to proceed to data collection following the final approval.</small>	

Appendix B: UREC Final Approval



UREC Decision, Version 2.0

Unicaf University Research Ethics Committee Decision

Student's Name:	Tendai Panaishe
Student's ID #:	R2105D12283801
Supervisor's Name:	Dr Asad Hassan Butt
Program of Study:	UU-DBA-900-3
OfferID / GroupID:	O70604G79820
Dissertation stage:	DS3
Research Project Title:	AN EVALUATION OF THE DIGITAL TRANSFORMATION FRAMEWORKS FOR THE COMMERCIAL BANKING INDUSTRY IN ZIMBABWE
Ethical conditions for approval:	No comments.
Methodological recommendations:	
Decision*:	A. Approved without revision or comments
Date:	March 12, 2024

All Doctoral students are advised to check the regulations pertaining to research and General Data Protection Regulation (GDPR) of the country in which the research will take place as each country may have different restrictions on conducting research.

- i. Approval from a local Research Ethics Committee (REC) or professional regulatory body such as Institutional Review Board (IRB)
- ii. Approval from Ministry or public agency

*Provisional approval provided at the Dissertation Stage 1, whereas the final approval is provided at the Dissertation stage 3. The student is allowed to proceed to data collection following the final approval.

Appendix C: Research Council of Zimbabwe Clearance

RESEARCH COUNCIL OF ZIMBABWE



Cabinet Office
No 11 Stafford Road
Mt Pleasant, Harare
P.O. Box CY294, Causeway
Harare, Zimbabwe
Tel: 263-242-304733, 304787, 304861
Fax: 263-242-304808
Email: secretary@rcz.ac.zw
Website: www.rcz.ac.zw

REF SC/9

09 December 2024

Mr Tendai Panaishe
Student – UNICAF University Malawi

RESEARCH CLEARANCE: THE IMPACT OF DIGITAL TRANSFORMATION ON THE PERFORMANCE OF ZIMBABWEAN COMMERCIAL BANKS, THE MEDIATING ROLE OF IT CAPABILITY

The Research Council of Zimbabwe (RCZ) acknowledges receipt of your communication dated 4 December 2024 regarding the subject mentioned. As a student at the UNICAF University Malawi, you intend to conduct research in Zimbabwe as part of your PhD in Business Administration.


After a thorough review of the submitted documents, RCZ notes that you are a Zimbabwean citizen self-funding your studies at UNICAF University Malawi. Consequently, you are excluded from regulations under Section 27 of the Research Act [*Chapter 10:22*]. In view of this, you are cleared to conduct data collection. However, it is important to note that this does not exempt you from seeking entry permissions from relevant Ministries, Departments, and Agencies that you may need to access during your research.

Sharing the final research report with the RCZ and uploading a copy to the National Research Database of Zimbabwe is encouraged. This step ensures that your findings are widely accessible and contribute to the advancement of knowledge in Zimbabwe.

Dr P. Chikudza
Executive Director



Appendix D: Gatekeeper Forms


UU_GL - Version 2.0

Gatekeeper letter

Institution / Organization : AFC Bank
Address: 5th Floor, Hurudza House
Date: 30-Jan-2024
Subject: Permission to Carry out Research

Dear Sir or Madam

I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.


Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled he impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability" seeks to establish the relationships between digital transformation and employee performance, IT capability, IT Innovation and commercial bank performance, taking into account the mediating role of IT capability. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,
 Tendai Panaishe

Student's Name: Tendai Panaishe
Student's E-mail: mrtendaip@gmail.com
Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718663115
Supervisor's Title and Name: Dr Asad Hassan Butt
Supervisor's Position:
Supervisor's E-mail: a.butti@unicaf.org



UNICAF
UNIVERSITY

Bank ABC Memo
5 June 2024

Approved
A. Hassan
Human Capital Head

UU_GL - Version 2.0

Gatekeeper letter

Institution / Organization: African Banking Corporation of Zimbabwe
 Address: 1 Endeavour Crescent Mount Pleasant
 Date: 25-May-2024
 Subject: Permission to Carry out Research

Dear Sir or Madam

I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "An Inquiry into the Impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled "An Inquiry into the Impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability" seeks to establish the relationships between Digital Transformation, Employee Performance, IT capability, IT Innovation and their relationship with commercial bank performance and consider the mediation of IT capability. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Tendai Panaishe

Student's Name: Tendai Panaishe
 Student's E-mail: mrtendaip@gmail.com
 Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718863115
 Supervisor's Title and Name: Dr Asad Hassan Butt
 Supervisor's Position:
 Supervisor's E-mail: a.butt@unicaf.org

Gatekeeper letter

Institution / Organization : CBZ

Address: Union House, 60 Kwame Nkrumah, Harare

Date: 30-Jan-2024

Subject: Permission to Carry out Research

Dear Sir or Madam



I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "The evaluation of digital transformation frameworks for commercial banks in Zimbabwe".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled "An evaluation of the Digital Transformation Frameworks for Commercial Banks In Zimbabwe" seeks to establish the relationships between dynamic capabilities, IT capability and organizational culture with the successful implementation of digital transformation as well as their relationship with commercial bank performance. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks.

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Tendai Panaishe

Student's Name: Tendai Panaishe

Student's E-mail: mrtendaip@gmail.com

Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718663115

Supervisor's Title and Name: Dr Asad Hassan Butt

Supervisor's Position:

Supervisor's E-mail: a.butt@unicaf.org



Gatekeeper letter

Institution / Organization : Ecobank

Address: Sam Levy Office Park Block A, Piers Road

Date: 30-Jan-2024

Subject: Permission to Carry out Research

Dear Sir or Madam

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

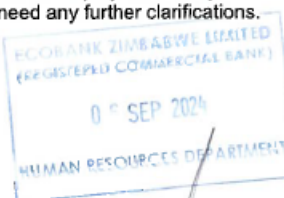
This study entitled "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability" seeks to establish the relationships between digital transformation and employee performance, IT capability, IT Innovation and commercial bank performance, taking into account the mediating role of IT capability. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed.

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Tendai Panaishe

Student's Name: Tendai Panaishe
Student's E-mail: mrtendaip@gmail.com
Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718663115
Supervisor's Title and Name: Dr Asad Hassan Butt
Supervisor's Position:
Supervisor's E-mail: a.butt@unicaf.org



Gatekeeper letter

Institution / Organization : FBC Bank
Address: 45 Nelson Mandela Avenue, Harare
Date: 30-Jan-2024
Subject: Permission to Carry out Research



Dear Sir or Madam

I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability" seeks to establish the relationships between digital transformation and employee performance, IT capability, IT Innovation and commercial bank performance, taking into account the mediating role of IT capability. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed.

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Tendai Panaishe

Student's Name: Tendai Panaishe
Student's E-mail: mrtendaip@gmail.com
Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718663115
Supervisor's Title and Name: Dr Asad Hassan Butt
Supervisor's Position:
Supervisor's E-mail: a.butt@unicaf.org

Gatekeeper letter

Institution / Organization : First Capital bank
Address: 1st Street/Jason Moyo Avenue, Harare
Date: 30-Jan-2024
Subject: Permission to Carry out Research

Dear Sir or Madam

I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled "An evaluation of the Digital Transformation Frameworks for Commercial Banks In Zimbabwe" seeks to establish the relationships between dynamic capabilities, IT capability and organizational culture with the successful implementation of digital transformation as well as their relationship with commercial bank performance. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,
Tendai Panaishe

Student's Name: Tendai Panaishe
Student's E-mail: mrlendaip@gmail.com
Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718663115
Supervisor's Title and Name: Dr Asad Hassan Butt
Supervisor's Position:
Supervisor's E-mail: a.butt@unicaf.org





UU_GL - Version 2.0

Gatekeeper letter

Institution / Organization : Nedbank

Address: 14th Floor Old Mutual Centre 3rd Street

Date: 30-Jan-2024

Subject: Permission to Carry out Research

Dear Sir or Madam

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability" seeks to establish the relationships between digital transformation and employee performance, IT capability, IT Innovation and commercial bank performance, taking into account the mediating role of IT capability. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Tendai Panaishe

Student's Name: Tendai Panaishe

Student's E-mail: mrtendaip@gmail.com

Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718663115

Supervisor's Title and Name: Dr Asad Hassan Butt

Supervisor's Position:

Supervisor's E-mail: a.butt@unicaf.org





UU_GL - Version 2.0

Gatekeeper letter

Institution / Organization : NMB

Address: 19207 Liberation Legacy Way, Harare

Date: 30-Jan-2024

Subject: Permission to Carry out Research

Dear Sir or Madam

I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability" seeks to establish the relationships between digital transformation and employee performance, IT capability, IT Innovation and commercial bank performance, taking into account the mediating role of IT capability. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policymakers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed

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Yours Sincerely,

Tendai Panaishe

Student's Name: Tendai Panaishe

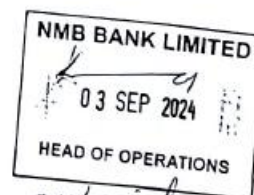
Student's E-mail: mrtendaip@gmail.com

Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718663115

Supervisor's Title and Name: Dr Asad Hassan Butt

Supervisor's Position:

Supervisor's E-mail: a.butt@unicaf.org



 Stanbic Bank

22 May 2024

authorised


 Human Capital



UU_GL - Version 2.0

Gatekeeper letter

Institution / Organization : Stanbic

Address: Stanbic Centre, 59 Samora Machel Avenue

Date: 30-Jan-2024

Subject: Permission to Carry out Research

Dear Sir or Madam

I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

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Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,


 Tendai Panaishe

Student's Name: Tendai Panaishe

Student's E-mail: mrtendaip@gmail.com

Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718863115

Supervisor's Title and Name: Dr Asad Hassan Butt

Supervisor's Position:

Supervisor's E-mail: a.butt@unicaf.org

Head Human Capital
Signature.....



UU_GL - Version 2.0

UNICAF
UNIVERSITY

Gatekeeper letter

Institution / Organization : Standard Chartered Bank
Address: 68 Nelson Mandela Avenue
Date: 17-Apr-2024
Subject: Permission to Carry out Research

Dear Sir or Madam

I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability" seeks to establish the relationships between digital transformation and employee performance, IT capability, IT Innovation and commercial bank performance, taking into account the mediating role of IT capability. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed.

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Tendai Panaishe


Student's Name: Tendai Panaishe
Student's E-mail: mrtendaip@gmail.com
Student's Address and Telephone: 33 Glamis Hatfield Harare. 0718663115
Supervisor's Title and Name: Dr Asad Hassan Butt
Supervisor's Position:
Supervisor's E-mail: a.butt@unicaf.org

STEWARD BANK

Everyday Banking For Everyday People
A Registered Commercial Bank

ADDRESS

79 Livingstone Avenue
P.O. Box 5220
Harare, Zimbabwe

+ 263 8677020267 

+263-242-791444 / 8
791450 / 60
791461
732408
792032
793290
253672 / 3 / 5

www.stewardbank.co.zw 

BOARD OF DIRECTORS

Bernard T. B. Chidzero (Chairman)
Morgen Mufowo
Hazvinai Kapfunde
Roy Chimankire
Rugere Chidembo
Nadine G. Levy
*Cleopas Kadzimu
*Courage S. Moshavave

16 January 2025

Tendai Panaishe
C/o Unicaf University
MALAWI

Dear Tendai,

RE: REQUEST TO CONDUCT RESEARCH WITHIN STEWARD BANK LIMITED

Thank you for your interest in conducting research within Steward Bank Limited. Your request to use our information in conducting a research on the topic, "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability", has been approved.

You are required to provide the final copy of the research document to:

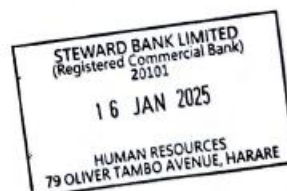
The GM: Human Resources, chido.rusike@stewardbank.co.zw.

Kindly get in touch with Lorraine on 0771222415 for any additional support.

For and On Behalf of Steward Bank



Lorraine Muchenjewa
Talent Development Manager



Gatekeeper letter

Institution / Organization : ZB Bank

Address: 46 Speke Avenue, Harare,

Date: 30-Jan-2024

Subject: Permission to Carry out Research

Dear Sir or Madam

I am a doctoral student at Unicaf University Malawi.

As part of my degree I am carrying out a study on "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability".

I am writing to request for permission to recruit participants in this research from your institution.

The participants will be required to complete the study questionnaire and where possible distribute the questionnaire to bank colleagues. Completing the questionnaire will take between 10 and 20 minutes.

Subject to approval by Unicaf Research Ethics Committee (UREC) this study will be using a survey and a questionnaire will be deployed to collect the data on the various variables that make up digital transformation frameworks.

This study entitled "The impact of Digital Transformation on the Performance of Commercial Banks in Zimbabwe: The mediating Role of IT Capability" seeks to establish the relationships between digital transformation and employee performance, IT capability, IT Innovation and commercial bank performance, taking into account the mediating role of IT capability. It is anticipated that this study will not only add to the body of knowledge but will assist bank management, regulators, and policy makers in making decisions regarding digital transformation by commercial banks. Data for this study will be collected within one month from the day of your granting the permission to proceed

Thank you in advance for your time and for your consideration of this project. Kindly please let me know if you require any further information or need any further clarifications.

Yours Sincerely,

Tendai Panaishe

Student's Name: Tendai Panaishe

Student's E-mail: mrtendaip@gmail.com

Student's Address and Telephone: 33 Glamis Hatfield Harare, 0718663115

Supervisor's Title and Name: Dr Asad Hassan Butt

Supervisor's Position:

Supervisor's E-mail: a.butt@unicaf.org



Appendix E: Research Ethics Application Form (REAF)



REAF_DS - Version 3.3 AP



UNICAF UNIVERSITY RESEARCH ETHICS APPLICATION FORM DOCTORAL STUDIES	UREC USE ONLY: Application No: _____ Date Received: _____
--	---

Student's Name: Tendai Panaishe
Student's E-mail Address: mrtendaip@gmail.com
Student's ID #: R2105D12283801
Supervisor's Name: Dr. Asad Hassan Butt
University Campus/Program: Unicaf University Malawi: DBA - Doctorate of Business Administration
Research Project Title: An Evaluation of the Digital Transformation Frameworks for Commercial Banks in Zimbabwe

1. Please state the timelines involved in the proposed research project:

Estimated Start Date: 15-Jan-2023 Estimated End Date: 15-Jan-2025

2. External Research Funding (if applicable):

2.a. Do you have any external funding for your research?

YES NO

If YES, please answer questions 2b and 2c.

2.b. List any external (third party) sources of funding you plan to utilise for your project. You need to include full details on the source of funds (e.g. state, private or individual sponsor), any prior / existing or future relationships between the funding body / sponsor and any of the principal investigator(s) or co-investigator(s) or student researcher(s), status and timeline of the application and any conditions attached.

2.c. If there are any perceived ethical issues or potential conflicts of interest arising from applying for and/or receiving external funding for the proposed research then these need to be fully disclosed below and also further elaborated on, in the relevant sections on ethical considerations later on in this form.

3. The research project

3.a. Project Summary:

In this section fully describe the purpose and underlying rationale for the proposed research project. Ensure that you pose the research questions to be examined, state the hypotheses, and discuss the expected results of your research and their potential.

It is important in your description to use plain language so it can be understood by all members of the UREC, especially those who are not necessarily experts in the particular discipline. To that effect ensure that you fully explain/define any technical terms or discipline-specific terminology (use the space provided in the box).

The question of what constitute a successful digital transformation framework and what needs to be done to successfully implement DT in the commercial banking sector persists. Consequently, the interest by commercial banks in DT has grown over the years, driven by the need to improve their performance. This resulted in the pursuit of various ways of implementing DT frameworks, with inconsistent results. Furthermore, the existing studies were done in different geographical contexts. Overall, the inquiry seeks to investigate the impact of DT frameworks on the successful implementation of DT and hence performance of commercial banks in Zimbabwe. To achieve this objective, the study will be guided by the following questions and hypotheses:

RQ1: What effect do Dynamic Capabilities have on the successful implementation of DT by Zimbabwean commercial banks?

H1a: The association between dynamic capabilities and successful DT implementation by commercial banks in Zimbabwe is positive and significant.

RQ2: What is the impact of organizational culture on the successful implementation of DT by Zimbabwean commercial banks?

H2a: There is a positive association between organizational culture and the successful implementation of DT frameworks by commercial banks in Zimbabwe.

RQ3: How do IT Capability influence the successful implementation of DT frameworks by Zimbabwean commercial banks?

H3a: The influence of IT Capabilities on commercial banks' successful implementation of DT in Zimbabwe is positive and significant.

RQ4: What is the influence of IT Capability on the performance of Zimbabwe's commercial banks?

H4a: IT Capabilities positively influence the performance of Zimbabwe's commercial banks.

RQ5: What is the impact of successful DT on the performance of Zimbabwean commercial banks?

H5a: The relationship between successful digital transformation and Zimbabwean commercial bank performance is positive and significant.

3.b. Significance of the Proposed Research Study and Potential Benefits:

Outline the potential significance and/or benefits of the research (use the space provided in the box).

Theoretically, this study will address research gaps given that prior studies did not focus on the commercial banking sector, some have applied qualitative approach, used case studies while this will use a quantitative approach that will utilize a survey. Further, the study will consider the impact of dynamic capabilities, Organizational culture, and IT capability on commercial performance. The findings of this study will enrich the current knowledge base.

Practically, the findings will assist banks craft or modify their frameworks to achieve successful digital transformation and enhance performance. Prior studies indicate that DT initiatives often face massive hurdles (Tran et al., 2022) therefore this study will illuminate what constructs of digital transformation frameworks are important thereby assisting managers, policymakers and regulators in decision making.

4. Project execution:**4.a. The following study is an:**

- experimental study (primary research)
 desktop study (secondary research)
 desktop study using existing databases involving information of human/animal subjects
 Other

If you have chosen 'Other' please Explain:

4.b. Methods. The following study will involve:

- a Quantitative methodology
 a Qualitative methodology
 a mixed methods approach

If you have chosen mixed methods please state below whether you are going to proceed with triangulation or not.

- YES NO

4.c. Please state below which tools you are going to use:

A Select the tools to be used in your study	B Select how the tools selected in column A will be administered (select one or more)	C Select what types of questions will be included in the tools previously selected in column A (select one or more)
Interviews <input type="checkbox"/>	<input type="checkbox"/> Face-to-face <input type="checkbox"/> Online with camera (synchronous live discussion with camera) <input type="checkbox"/> Audio only (synchronous live discussion without camera, i.e., via phone)	<input type="checkbox"/> Open-ended questions <input type="checkbox"/> Close-ended questions <input type="checkbox"/> Includes section related to demographics
Focus Groups <input type="checkbox"/>	<input type="checkbox"/> Face-to-face <input type="checkbox"/> Online with camera (synchronous live discussion with camera) <input type="checkbox"/> Audio only (synchronous live discussion without camera, i.e., via phone)	<input type="checkbox"/> Open-ended questions <input type="checkbox"/> Close-ended questions <input type="checkbox"/> Includes section related to demographics
Questionnaire <input checked="" type="checkbox"/>	<input type="checkbox"/> Face-to-face self – administered questionnaire <input type="checkbox"/> Online, i.e., via phone or any other platform. The researcher reads the questions to the participants <input checked="" type="checkbox"/> Online asynchronous self-administered questionnaire (i.e., via email)	<input type="checkbox"/> Open-ended questions <input checked="" type="checkbox"/> Close-ended questions <input checked="" type="checkbox"/> Includes section related to demographics

A Select the tools to be used in your study	B Select how the tools selected in column A will be administered (select one or more)	C Select what types of questions will be included in the tools previously selected in column A (select one or more)
Experiments <input type="checkbox"/>	<input type="checkbox"/> Face-to-face <input type="checkbox"/> Online with camera (synchronous live discussion with camera) <input type="checkbox"/> Audio only (synchronous live discussion without camera, i.e., via phone) <input checked="" type="checkbox"/> Asynchronously via any online platform	<input type="checkbox"/> Open-ended questions <input checked="" type="checkbox"/> Close-ended questions <input checked="" type="checkbox"/> Includes section related to demographics
Tests <input type="checkbox"/>	<input type="checkbox"/> Face-to-face <input type="checkbox"/> Online with camera (synchronous live discussion with camera) <input type="checkbox"/> Audio only (synchronous live discussion without camera, i.e., via phone) <input type="checkbox"/> Asynchronously via any online platform	Provide a brief description of the test in the box 'Other' below.
Other		

5. Participants:

5 a. Does the Project involve the recruitment and participation of additional persons other than the researcher(s) themselves?

- YES If YES, please complete all following sections.
- NO If NO, please directly proceed to Question [7](#).

5 b. Relevant Details of the Participants of the Proposed Research

State the number of participants you plan to recruit, and explain in the box below how the total number was calculated.

Number of participants

The commercial banking sector employees are estimated to be 6000 according to the Reserve Bank of Zimbabwe statistics. In order to arrive at the sample size of 361 respondents, the Krejcie and Morgan's (1970) table was used. The table was chosen for its simplicity in both understanding and application

Describe important characteristics such as: demographics (e.g. age, gender, location, affiliation, level of fitness, intellectual ability etc). It is also important that you specify any inclusion and exclusion criteria that will be applied (e.g. eligibility criteria for participants).

Age range From To

Gender Female
 Male

Eligibility Criteria:

- Inclusion criteria
- Exclusion criteria

Disabilities/Disorders: You should only include the participants who can provide informed consent for themselves. Individuals who have a mental disability and are not in a position to provide their own consent should not participate in the study. Please provide information for any other disabilities/disorders the participants may have:

Other relevant information (use the space provided in the box):

5 c. Participation & Research setting:

Clearly describe which group of participants (described in 5b) is completing/participating in the material(s)/tool(s) described in 4c above (use the space provided in the box)

Only bank employees who work for the 12 commercial banks in Zimbabwe will take part. These must be 18 years and older, up to 65 years, not having any disabilities and must be able to provide informed consent on their own. The participants may be non managerial, managerial or executive management. Students on attachment will not take part in the survey. All participants taking part in this study will have to complete the questionnaire.

5 d. Recruitment Process for Human Research Participants:

Clearly describe how the potential participants will be identified, approached and recruited (use the space provided in the box).

The researcher will request the responsible bank's management for permission to allow their employees to participate in the survey. The questionnaire will then be sent to the respective bank's human resources department who will be asked to circulate within the relevant employees within their commercial bank.

5 e. Research Participants Informed Consent.

Select below which categories of participants will participate in the study. Complete the relevant Informed Consent form and submit it along with the REAF form.

Yes	No	Categories of participants	Form to be completed
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Typically Developing population(s) above the maturity age *	Informed Consent Form
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Typically Developing population(s) under the maturity age *	Guardian Informed Consent Form

* Maturity age is defined by national regulations in laws of the country in which the research is being conducted.

5 f. Relationship between the principal investigator and participants.

Is there any relationship between the principal investigator (student), co-investigators(s), (supervisor) and participant(s)? For example, if you are conducting research in a school environment on students in your classroom (e.g. instructor-student).

YES NO

If YES, specify (use the space provided in the box).

6. Potential Risks of the Proposed Research Study.

6 a. i. Are there any potential risks, psychological harm and/or ethical issues associated with the proposed research study, other than risks pertaining to everyday life events?

YES NO

If YES, specify below and answer the question 6 a.ii.

6 a.ii Provide information on what measures will be taken in order to exclude or minimise risks described in 6.a.i.

6 b. Choose the appropriate option

	Yes	No
i. Will you obtain a written informed consent form from all participants?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii. Does the research involve, as participants, people whose ability to give free and informed consent is in question?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Does this research involve participants who are children under maturity age? If you answered YES to question iii, complete all following questions. If you answered NO to question iii, do not answer Questions iv, v, vi and proceed to Questions vii, viii, ix and x.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Will the research tools be implemented in a professional educational setting in the presence of other adults (i.e. classroom in the presence of a teacher)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v. Will informed consent be obtained from the legal guardians (i.e. parents) of children?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
vi. Will verbal assent be obtained from children?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
vii. Will all data be treated as confidential? If NO, explain why confidentiality of the collected data is not appropriate for this proposed research project, providing details of how all participants will be informed of the fact that any data which they will provide will not be confidential.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
viii. Will all participants/data collected be anonymous? If NO, explain why and describe the procedures to be used to ensure the anonymity of participants and/or confidentiality of the collected data both during the conduct of the research and in the subsequent release of its findings.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Yes	No
ix. Have you ensured that personal data and research data collected from participants will be securely stored for five years?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
x. Does this research involve the deception of participants? If YES, describe the nature and extent of the deception involved. Explain how and when the deception will be revealed, and who will administer this debrief to the participants:	<input type="checkbox"/>	<input checked="" type="checkbox"/>

6 c. i. Are there any other ethical issues associated with the proposed research study that are not already adequately covered in the preceding sections?

Yes No

If YES, specify (maximum 150 words).

6.c.ii Provide information on what measures will be taken in order to exclude or minimise ethical issues described in 6.c.i.

6 d. Indicate the Risk Rating.

High Low

7. Further Approvals

All researchers are advised to check the regulations pertaining to research and General Data Protection Regulation (GDPR) of the country in which the research will take place as each country may have different restrictions on conducting research. Are there any other approvals required (i.e., from a ministry or public agency in the country, in addition to ethics clearance from UREC) in order to carry out the proposed research study?

YES NO If YES, specify.

Approval from the management of the respective commercial banks to be included in the study will be obtained for the study to be done

8. Application Checklist

Mark if the study involves any of the following:

- Children and young people under 18 years of age, vulnerable populations such as children with special educational needs (SEN), racial or ethnic minorities, socioeconomically disadvantaged persons, pregnant women, elderly, malnourished people, and ill people.
- Research that foresees risks and disadvantages that would affect any participant of the study such as anxiety, stress, pain or physical discomfort, harm risk (which is more than is expected from everyday life) or any other act that participants might believe is detrimental to their wellbeing and/or has the potential to / will infringe on their human rights / fundamental rights.
- Risk to the well-being and personal safety of the researcher.
- Administration of any substance (food / drink / chemicals / pharmaceuticals / supplements / chemical agent or vaccines or other substances (including vitamins or food substances) to human participants.
- Results that may have an adverse impact on the natural or built environment.

9. Further documents

Check that the following documents are attached to your application:

		ATTACHED	NOT APPLICABLE
1	Recruitment advertisement (if any)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Informed Consent Form / Guardian Informed Consent Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Research Tool(s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4	Gatekeeper Letter	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	Any other approvals required in order to carry out the proposed research study, e.g., institutional permission (e.g. school principal or company director) or approval from a local ethics or professional regulatory body.	<input checked="" type="checkbox"/>	<input type="checkbox"/>

10. Final Declaration by Applicants:

- (a) I declare that this application is submitted on the basis that the information it contains is confidential and will only be used by Unicaf University for the explicit purpose of ethical review and monitoring of the conduct of the research proposed project as described in the preceding pages.
- (b) I understand that this information will not be used for any other purpose without my prior consent, excluding use intended to satisfy reporting requirements to relevant regulatory bodies.
- (c) The information in this form, together with any accompanying information, is complete and correct to the best of my knowledge and belief and I take full responsibility for it.
- (d) I undertake to abide by the highest possible international ethical standards governing the Code of Practice for Research Involving Human Participants, as published by the UN WHO Research Ethics Review Committee (ERC) on <http://www.who.int/ethics/research/en/> and to which Unicaf University aspires to adhere.
- (e) In addition to respect any and all relevant professional bodies' codes of conduct and/or ethical guidelines, where applicable, while in pursuit of this research project.

 I agree with all points listed under Question 10

Student's Name: Tendai Panaishe

Supervisor's Name: Dr. Asad Hassan Butt

Date of Application:

Important Note:

Save your completed form (we suggest you also print a copy for your records) and then submit it to your UU Dissertation/project supervisor (tutor). In the case of student projects, the responsibility lies with the Faculty Dissertation/Project Supervisor. If this is a student application, then it should be submitted via the relevant link in the VLE. Please submit only electronically filled in copies; do not hand fill and submit scanned paper copies of this application.

Appendix F: Financial Institutions in Zimbabwe


Type of Institution	Number
Commercial Banks	14
Building Societies	4
Savings Bank (POSB)	1
Total Banking Institutions	19
Other Financial Institutions Under the Supervision of Reserve Bank	
Credit-only-MFIs	219
Deposit-Taking MFIs	8
Development Financial Institutions (SMEDCO, IDBZ, IDCZ and AFC Land & Development Bank)	4
Total Other Institutions	231
Total Number of Institutions	250

IDBZ – Infrastructure Development Bank of Zimbabwe, IDCZ – Industrial Development Corporation of Zimbabwe and SMEDCO - Small and Medium Enterprise Development Corporation

Source: Reserve Bank of Zimbabwe: Banking Sector Report For The Quarter Ended 30

September 2023

Appendix G: Approved Informed Consent Form


UU_IC - Version 2.1

Informed Consent Form

Part 1: Debriefing of Participants

Student's Name:	Tendai Panaishe
Student's E-mail Address:	mrtendaip@gmail.com
Student ID #:	R2105D12283801
Supervisor's Name:	Dr Asad Hassan Butt
University Campus:	Unicaf University Malawi (UUM) ▼
Program of Study:	DBA- Doctorate in Business Administration
Research Project Title:	An Evaluation of the Digital Transformation Framework for the Commercial Banking Industry in Zimbabwe

Date: 29-Jan-2024

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).

This study aims at investigating the digital transformation frameworks for commercial banks in Zimbabwe so as it achieve success digital transformation and increase commercial bank performance. It seeks to establish the variables that ensure a successful implementation of digital transformation and improved commercial bank performance. This will assist in increasing the current body of knowledge on the subject as well as helping organizations, regulators and policy makers with decision making.

You have been chosen to participate in this study firstly by you being an employee of a commercial bank in Zimbabwe thus your knowledge of the digital transformation in your institution is valuable to this study.

The above named student is committed to ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, Tendai Panaishe, ensure that all information stated above is true and that all conditions have been met.

Student's Signature:	Tendai Panaishe
-----------------------------	-----------------



Informed Consent Form

Part 2: Certificate of Consent

This section is mandatory and should to be signed by the participant(s)

Student's Name:	Tendai Panaishe
Student's E-mail Address:	mrtendaip@gmail.com
Student ID #:	R2105D12283801
Supervisor's Name:	Dr Asad Hassan Butt
University Campus:	Unicaf University Malawi (UUM)
Program of Study:	DBA- Doctorate in Business Administration
Research Project Title:	An Evaluation of the Digital Transformation Framework for the Commercial Banking Industry in Zimbabwe

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation in this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's Print name: _____

Participant's Signature: _____

Date: _____

If the Participant is illiterate:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual has given consent freely.

Witness's Print name: _____

Witness's Signature: _____

Date: _____

Appendix H: Online Study Questionnaire

Thank you for taking the time to complete the questionnaire below. You are invited to complete the following questionnaire, which aims at examining “THE IMPACT OF DIGITAL TRANSFORMATION ON THE PERFORMANCE OF COMMERCIAL BANKS IN ZIMBABWE: THE MEDIATING ROLE OF IT CAPABILITY. To show that you have agreed to take part in this study or otherwise, you are required to tick the appropriate checkbox in the introductory section below:

The questionnaire should only take at most 20 minutes to complete, and it has 39 questions on 16 pages. Your responses are anonymous and will not be identified with you in any way. By participating in this survey, you are indicating that you understand that your responses are anonymous and will not be identified with you in any way. You may skip any question that you find intrusive or offensive, but it will help me if you respond to as many questions as you feel comfortable with. You have the right to withdraw at any stage (before or post the completion) of the research without any consequences and without providing any explanation. In this case, the data collected will be deleted.

INTRODUCTORY SECTION

* Shows required field

“I have read the foregoing information about this study, or it has been read to me. An opportunity to ask questions and discuss about the study was given to me. All my questions were responded to, and I am satisfied. All information about this study has been made available to me. I am fully aware that I can withdraw from this study at any time without giving reasons and that my withdrawal will not have any negative repercussions. I give my consent to the use of multimedia (not limited to but including audio recordings, and video recordings) for my participation in this study. I am fully aware that my data will remain anonymous and confidential unless stated otherwise. I consent voluntarily to be a participant in this study”.

Consequently, I agree to take part in this study. *

Mark only one oval.

- I Agree
 I do not Agree

SECTION A: DEMOGRAPHIC CHARACTERISTICS.

Please complete the questionnaire below by following the instructions given for each variable.

Instructions: Please select the answer by ticking in the box with the most appropriate option or fill out the appropriate response to the questions asked

1. **Bank Name** (Write the name of your bank) *

2. **What gender do you identify as?** (Please select one option by ticking the appropriate box) *

Mark only one oval.

Male Female I prefer not to answer Other Specify

3. **Age** (Please write your actual age in years) *

4. **Level of Education** (Please choose the highest level of education attained by ticking one box) *

Mark only one oval.

- School Certificate
- Diploma
- Degree
- Masters
- Doctorate and higher
- I prefer not to say

5. **Duration of Employment** (Please state the actual number of years in your current bank) *

6. **Employment Status** (Please indicate by choosing one option) *

Mark only one oval.

Permanent Contract I prefer not to say

7. **Number of years the bank has been in operation** (Please state the actual number of years your bank has been operating) *

8. **Position in the bank** (Please indicate by ticking one box) *

Mark only one oval.

- Non-Managerial
 Lower-Level Manager
 Middle-Level Manager
 Executive-Management

SECTION B: KEY QUESTIONS

i. Digital Transformation

Instructions: Concerning your organization, please show the level to which you are in agreement or disagreement (tick the appropriate box) with the subsequent statements. Please use the following scale: Strongly Disagree = 1; Disagree = 2; Uncertain = 3; Agree = 4; Strongly Agree = 5.

1. Our bank is pushing new business methods based on technologies such as big data analytics, and social media platforms. *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

2. Our bank is combining digital tools such as social media, big data analytics, cloud, and mobile technologies to facilitate change *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

3. Our bank is transitioning toward the utilisation of digital technologies such as big data analytics, cloud, mobile, and social media platforms. *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

4. The bank's IT application portfolios have facilitated the achievement of digital transformation by the bank *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

5. The bank employs various digital tools including data analytics, social media, cell phone and embedded services to know customers better *

Mark only one oval.

Strongly Disagree Disagree Neutral Agree Strongly Agree

6. The bank applies technology to improve the performance of current products and services. *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

ii. Employee Productivity

Instructions: Concerning your organization, please show the level to which you are in agreement or disagreement (tick the appropriate box) with the subsequent statements. Please use the following scale: Strongly Disagree = 1; Disagree = 2; Uncertain = 3; Agree = 4; Strongly Agree = 5.

7. The employees of the firm fully participate in the DT of the bank *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

8. The DT in our bank enhances employee motivation, knowledge, competence and digital leadership.

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

9. The ICT resources from our bank's DT program improve work efficiency *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

10. I can easily understand and use new ICT deployed by the bank *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

11. The ICTs used by our bank enable me to accomplish my tasks faster *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

12. DT increases digital overload, increases stress and reduces employee productivity in our bank *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

iii. IT Capability

Instructions: Concerning your organization, please show the level to which you are in agreement or disagreement (tick the appropriate box) with the subsequent statements. Please use the following scale: Strongly Disagree = 1; Disagree = 2; Uncertain = 3; Agree = 4; Strongly Agree = 5.

13. The bank invests in IT application portfolios and the latest technology to facilitate digital transformation *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

14. The bank's data administration services and designs are superior to the competition *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

15. The bank always combines its strategic planning and IT planning to achieve digital transformation *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly Agree

16. Our bank's IT helped to improve organisational performance in the last three years. *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly Agree

17. The bank continually endeavours to enhance the effectiveness of IT use to accomplish digital transformation *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

18. Our bank achieved most or all its overall objectives in the past three years due to superior IT capability *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly Agree

iv. IT Innovation

Instructions: Concerning your organisation, please show the level to which you are in agreement or disagreement (tick the appropriate box) with the subsequent statements. Please use the following scale: Strongly Disagree = 1; Disagree = 2; Uncertain = 3; Agree = 4; Strongly Agree = 5.

19. The bank's DT produces IT innovations of superior quality to the competition *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

20. At this bank, our IT staff are encouraged to be the most creative IT department in the commercial banking sector *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

21. The bank's DT program allows the bank to produce new products constantly *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

22. Our IT innovations increase the quality of current products *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

23. The bank's IT innovations give it an edge in marketing over the competition *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly Agree

24. The bank's output quality in customer service is improved by IT innovation *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

v. Commercial Bank Performance

Instructions: Concerning your organization, please show the level to which you are in agreement or disagreement (tick the appropriate box) with the subsequent statements. Please use the following scale: Strongly Disagree = 1; Disagree = 2; Uncertain = 3; Agree = 4; Strongly Agree = 5.

25. Over the previous three years, our bank's performance as evaluated by the return on investment (ROI) has been better than the competition *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

26. Over the past 3 years, our bank's expenses and costs have been lower than our competitors'. *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

27. The bank's digital transformation initiatives have seen an increase in customers satisfaction over the past 3 years. *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

28. Over the past 3 years, our bank's net profit has been higher than our competitors due to digital transformation initiatives. *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly agree

29. The bank experienced revenue growth that exceeded the competition during the past three years. *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly Agree

30. Over the past three years, our bank has witnessed an increase in the market share due to digital transformation *

Mark only one oval.

Strongly disagree Disagree Neutral Agree Strongly Agree

Thank you for your valuable time.

Appendix I: Structured Data Collection Sheet

Bank	Return on Assets (ROA)			
	2022	2023	2024	Average
1. AFC Commercial Bank	8.00%	59.10%	52.38%	39.83%
2. BancABC Zimbabwe	7.00%	14.00%	48.78%	23.26%
3. CBZ Bank Limited	22.00%	24.79%	6.18%	17.66%
4. Ecobank Zimbabwe Limited	18.50%	29.69%	10.77%	19.65%
5. FBC Bank Limited	18.34%	29.00%	40.52%	29.29%
6. First Capital Bank Limited	13.50%	18.07%	17.26%	16.28%
7. Metbank Limited	30.00%	40.14%	15.00%	28.38%
8. Nedbank Zimbabwe Limited	10.00%	46.71%	10.53%	22.41%
9. NMB Bank Limited	28.00%	59.41%	53.10%	46.84%
10. Stanbic Bank Zimbabwe Limited	25.73%	41.81%	10.77%	26.10%
11. Standard Chartered Bank Zimbabwe Limited	13.00%	15.24%	-1.74%	8.83%
12. Steward Bank Limited	7.00%	17.00%	33.08%	19.03%
13. ZB Bank Limited	7.00%	38.00%	23.80%	22.93%
Market	16.01%	33.30%	24.65%	24.65

Source: Bank Published Financial Statements

Appendix J: Averages for Descriptive Statistics for Study Constructs

Construct	N	Grand Mean	Average Std. Deviation	Average Variance
Digital Transformation	310	3.9271	.4463	.2072
Employee Productivity	310	3.9310	.4767	.2284
IT Capability	310	3.9716	.4313	.186
IT Innovation	310	3.9632	.4216	.179
Commercial Bank Performance	310	3.9645	.3835	.148

Note: N = Sample Size.

Appendix K: Online Consent Form

Timestamp	Consequently, I agree to take part in this study.	What gender do you identify as? (Please select one option by ticking the appropriate box)	Age	Level of Education (Please choose the highest level of education attained by ticking one box)	Duration of Employment (Please state the actual number of years in your current bank)	Employment Status (Please indicate by choosing one option)
2024/09/16 12:17:24 PM GMT+3	I agree	Male	18	Degree	5	Permanent
2024/09/09 9:45:56 PM GMT+3	I agree	Female	20	Degree	12	Permanent
2024/09/09 9:38:21 PM GMT+3	I agree	Female	24	Degree	12	Permanent
2024/09/09 5:10:53 PM GMT+3	I agree	Male	24	Degree	2	Contract
2024/09/05 12:10:20 PM GMT+3	I agree	Male	25	Degree	1	Contract
2024/09/09 10:02:33 PM GMT+3	I agree	Female	25	Degree	1	Contract
2024/09/18 1:19:26 PM GMT+3	I agree	Male	25	Degree	1	Contract
2024/09/09 11:40:31 PM GMT+3	I agree	Male	25	Degree	1	Contract
2024/09/11 11:33:14 AM GMT+3	I agree	Male	25	Degree	1	Contract
2024/09/09 9:38:42 PM GMT+3	I agree	Female	25	Degree	10	Permanent
2024/09/09 10:40:34 PM GMT+3	I agree	Male	25	Degree	9	Permanent
2024/09/09 10:25:02 PM GMT+3	I agree	Female	25	Degree	2	Permanent
2024/09/11 9:42:29 AM GMT+3	I agree	Male	26	Degree	8	Permanent
2024/09/11 9:33:14 AM GMT+3	I agree	Female	26	Degree	1	Contract
2024/09/17 3:20:39 PM GMT+3	I agree	Female	26	Degree	1	Contract
2024/09/17 3:21:58 PM GMT+3	I agree	Male	26	Degree	1	Contract
2024/09/09 9:28:36 PM GMT+3	I agree	Male	26	Degree	1	Contract
2024/09/11 9:09:18 AM GMT+3	I agree	Male	26	Degree	2	Contract
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2024/09/12 9:43:52 AM GMT+3	I agree	Male	27	Degree	6	Permanent
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2024/09/16 12:03:46 PM GMT+3	I agree	Male	27	Degree	2	Contract
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2024/09/09 11:03:25 PM GMT+3	I agree	Female	42	Masters	22	Permanent
2024/09/09 9:55:54 PM GMT+3	I agree	Female	42	Masters	17	Permanent
2024/09/11 9:44:09 AM GMT+3	I agree	Female	43	Masters	6	Permanent
2024/09/12 9:48:44 AM GMT+3	I agree	Male	43	Degree	6	Permanent
2024/09/10 8:12:48 PM GMT+3	I agree	Male	43	Masters	22	Permanent
2024/09/16 6:27:31 PM GMT+3	I agree	Male	43	Masters	5	Permanent
2024/09/09 10:22:12 PM GMT+3	I agree	Female	43	Masters	13	Permanent
2024/09/09 9:56:47 PM GMT+3	I agree	Male	44	Masters	7	Permanent
2024/09/10 9:45:24 PM GMT+3	I agree	Male	44	Masters	25	Permanent
2024/09/09 10:56:32 PM GMT+3	I agree	Male	44	Degree	24	Permanent
2024/09/09 10:15:07 PM GMT+3	I agree	Male	44	Masters	3	Permanent
2024/09/10 8:03:48 PM GMT+3	I agree	Female	44	Masters	6	Permanent
2024/09/11 9:49:13 AM GMT+3	I agree	Male	45	Doctorate and higher	11	Permanent
2024/09/09 9:26:33 PM GMT+3	I agree	Male	45	Masters	7	Permanent
2024/09/09 10:05:00 PM GMT+3	I agree	Female	45	Degree	17	Permanent
2024/09/10 7:29:27 PM GMT+3	I agree	Female	45	Masters	20	Permanent
2024/09/10 9:20:09 PM GMT+3	I agree	Male	45	Masters	25	Permanent
2024/09/09 9:34:38 PM GMT+3	I agree	Male	45	Degree	15	Permanent

2024/09/09 10:36:47 PM GMT+3	I agree	Female	45	Doctorate and higher	12	Permanent
2024/09/11 9:27:32 AM GMT+3	I agree	Male	45	Masters	12	Permanent
2024/09/05 12:04:14 PM GMT+3	I agree	Male	46	Doctorate and higher	20	Permanent
2024/09/09 9:33:33 PM GMT+3	I agree	Male	46	Doctorate and higher	10	Permanent
2024/09/18 12:57:47 PM GMT+3	I agree	Male	46	Doctorate and higher	5	Permanent
2024/09/04 2:22:15 PM GMT+3	I agree	Male	46	Masters	8	Permanent
2024/09/09 10:11:36 PM GMT+3	I agree	Female	46	Masters	26	Permanent
2024/09/09 10:47:25 PM GMT+3	I agree	Male	46	Masters	26	Permanent
2024/09/09 10:18:33 PM GMT+3	I agree	Male	46	Degree	26	Permanent
2024/09/17 2:23:15 PM GMT+3	I agree	Male	47	Doctorate and higher	14	Permanent
2024/09/10 8:15:40 PM GMT+3	I agree	Male	47	Degree	23	Permanent
2024/09/10 9:29:38 PM GMT+3	I agree	Female	47	Masters	27	Permanent
2024/09/10 9:18:30 PM GMT+3	I agree	Female	48	Doctorate and higher	18	Permanent
2024/09/10 8:58:44 PM GMT+3	I agree	Male	48	Degree	23	Permanent
2024/09/09 10:53:58 PM GMT+3	I agree	Male	48	Masters	28	Permanent
2024/09/10 9:38:04 PM GMT+3	I agree	Female	49	Degree	29	Permanent
2024/09/09 10:27:16 PM GMT+3	I agree	Female	49	Doctorate and higher	14	Permanent
2024/09/18 2:18:53 PM GMT+3	I agree	Male	49	Doctorate and higher	10	Permanent
2024/09/09 9:51:45 PM GMT+3	I agree	Male	50	Doctorate and higher	14	Permanent
2024/09/05 12:07:36 PM GMT+3	I agree	Female	50	Doctorate and higher	21	Permanent
2024/09/09 5:16:48 PM GMT+3	I agree	Male	50	Doctorate and higher	20	Permanent
2024/09/09 9:42:31 PM GMT+3	I agree	Male	50	Degree	19	Permanent

2024/09/10 9:36:26 PM GMT+3	I agree	Male	51	Doctorate and higher	27	Permanent
2024/09/09 5:24:27 PM GMT+3	I agree	Male	51	Doctorate and higher	40	Permanent
2024/09/10 9:35:30 PM GMT+3	I agree	Female	54	Degree	35	Permanent
2024/09/04 1:55:16 PM GMT+3	I agree	Female	56	Doctorate and higher	16	Permanent
2024/09/10 9:26:29 PM GMT+3	I agree	Female	59	Degree	38	Permanent
2024/09/09 10:11:04 PM GMT+3	I agree	Female	62	Doctorate and higher	27	Permanent
2024/09/09 9:47:18 PM GMT+3	I agree	Male	63	Masters	16	Permanent