Analysing documentary responses towards digitisation strategies in the higher education sector

C. M. Gertse

orcid.org/0000-0001-7688-0727

Mini-dissertation accepted in partial fulfilment of the requirements for the degree *Master of Business Administration* at the North-West University

Supervisor: Mr Johannes Coetzee

Graduation: July 2026

DECLARATION

I, C. M. Gertse, hereby declare that this study, "**Analysing Documentary Responses Towards Digitisation Strategies in the Higher Education Sector**," is my own work and that all the sources used have been indicated and acknowledged by means of a complete reference list.

I hereby affirm that this work partially fulfils the requirements for the Master of Business Administration degree at North-West University. Furthermore, I confirm that this work has not been previously submitted for any other degree at any other institution.

Signature

ACKNOWLEDGEMENTS

This dissertation is the result of effort and commitment. I am exceedingly grateful to my study supervisor, Mr Johannes Coetzee, for his steadfast support, direction, and mentorship throughout the course of this research. His expertise, patience, and constructive criticism were instrumental in the development of this dissertation. Furthermore, I extend my sincere appreciation to family and friends for their unwavering support during the completion of this study.

ABSTRACT

Higher education institutions (HEIs) are facing mounting pressure to digitise pedagogical, administrative, and operational tasks. Given the digital age we have been living in, this is expected. However, the problem is that many people are unable to keep up with the pace of technological advancement. This leads to 70% failure rates of digital adoption. Furthermore, Martec's Law suggests that while technological capabilities progress exponentially, organisational changes lag considerably. In addition, existing literature focuses more on digital transformation initiatives within manufacturing industries, which often prioritise the technological aspects of this disruption over human and organisational impacts. Therefore, the purpose of this study was to conduct a documentary analysis to explore the digitalisation strategies employed by HEIs from a change management perspective during their digital transformation initiatives. The findings highlight that digital transformation in HEIs involves not a one size fit all approach, which requires a move beyond the technological implementation by adopting a socio-technical framework for change. This will improve institutional resilience, global competitiveness, and service provision in an equitable manner in the 21st century.

Key Terms: Digitisation, Higher Education Institutions, Strategies, Digital Transformation, Change Management

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

In recent years, numerous organisations have seen significant disruption by the rapid advancement and adoption of digital technologies (Hanelt *et al.,* 2021:9). Consequently, organisations have been compelled to integrate these digital tools not only to survive, but also to enhance productivity, reduce operational costs, improve efficiency, and remain competitive, among other considerations (Kraus *et al.*, 2021:1; Nadeem *et al.,* 2024:1). To have a more understanding of this strategic response, it is important to distinguish between the concepts of 'digitisation' and 'digitalisation', which form the basis of digital transformation.

First, the process referred to as 'digitisation' entails that the transformation of analogue information into a digital format (Baalmans *et al.*, 2021:15). One example of this is the conversion of a paper-based performance management system into a digital one. Furthermore, the process of converting separate processes into a digital format is known as 'digitalisation', which comes after digitisation (Baalmans *et al.*, 2021:15). As a first step in attaining digital transformation, this procedure typically entails tasks such as streamlining the ordering process for products using an online shopping platform. This suggests that digitisation and digitalisation serve as the basis for digital transformation.

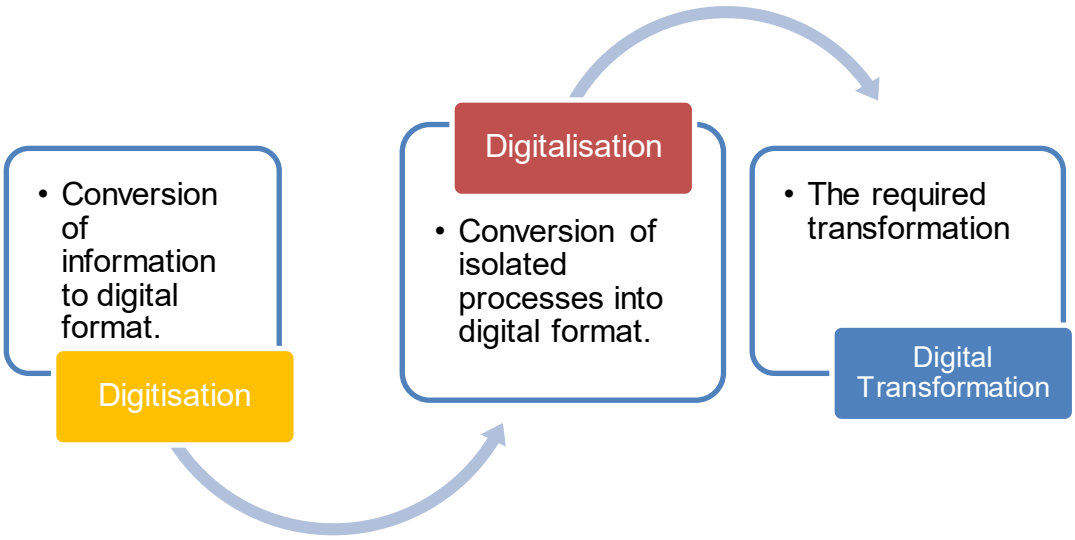


Figure 1.1: Digital transformation phases – Source: Adapted from Baalmans *et al.* (2021:15)

It is clear from the current business landscape that digital transformation has changed several industries. The use of electronic health records in the medical field can be used as an example of these phenomena (Stoumpos *et al.,* 2023:27). Another example can be found in the manufacturing industry, where operational choices heavily rely on modern technologies such as cloud computing, embedded systems, wireless sensors, and data insights (Kalsoom *et al.*, 2021:2). Implementing these technologies can lead to increased productivity, higher energy and transportation optimisation, and enhanced supply chain and factory oversight (Kalsoom *et al.*, 2021:7).

In line with the context of this study, Shenkoya and Kim (2023:2) emphasised that higher education institutions (HEIs) are not exempt from this transformative process, as global pressure has intensified for them to adapt their operations to the current digital landscape. This change was especially clear during the COVID-19 pandemic. Since the pandemic began in 2020, interest in this issue has grown remarkably, and more than 235 million students around the world enrolled in higher education (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2022:9). To demonstrate how this effect is different around the world, East and Southeast Asia had the most students, with 77 million enrolled (UNESCO, 2022:9). In 2020, the gross enrolment ratio in Sub-Saharan Africa was only 9%, while it was 79% in Europe and Northern America (UNESCO, 2022:9).

From these figures, it is evident that universities within the African context found it extremely hard to cope with the changed circumstances that were caused by the pandemic.

According to the Council on Higher Education (CHE), 1 070 855 students were enrolled in public HEIs in South Africa during the pandemic. Of these students, 655 427 were female, and 415 428 were male (CHE, 2021:11). These numbers reveal how digital transformation has affected a number of people. They indicate how many students were affected by the sudden switch to digital technologies such as online learning platforms, virtual classrooms, and digital administrative tools, which were put in place to keep HEIs running during the COVID-19 pandemic (Mhlanga *et al.*, 2022:2).

A global survey report that was published in 2023 indicated that approximately 50% to 60% of HEIs worldwide recognised digital adoption and transformation as one of their principal challenges (HolonIQ, 2023). Research demonstrates that approximately 80% of higher education institutions in Africa had trouble quickly switching to online teaching and learning methods when the COVID-19 pandemic first started (Maphosa & Maphosa, 2023:1). This is completely different from the 85% transition rate seen in European institutions, the 72% rate seen in American institutions, and the 60% adoption rate of online strategies seen in institutions across Asia and the Pacific (UNESCO, 2022:43). Many of the 26 public HEIs in South Africa appear to be lagging in digital transformation (Kanyane, 2023:149). This presents potential risks and adverse effects due to the rapid evolution of digital technologies. Because of this, the urgent need for digital transformation means that HEIs must quickly change how they teach, run their businesses, and plan to keep operating smoothly (Hanelt *et al.*, 2021:1161).

The sudden digital change impacted not only students, but also academic and support staff who had to work from home on short notice. Virtual meetings became the norm, and institutions became more dependent on servers and cloud technologies (Wade & Shan, 2020:217). To handle this change, HEIs had to use a new operational framework called the 'digital university.' This meant not only using new technologies but also changing the way an organisation works, its information systems, and its people (Fernández *et al.*, 2023:12351; Rahmadi, 2024:647). To stay competitive, institutions have been forced to make major changes to their strategies in order to adopt this operational framework.

Even though there have been efforts to embrace a new framework, the rapid adoption of digital technologies has brought about significant challenges, especially in institutional culture and capacity (Rahmadi, 2024:652). These challenges are exacerbated by a range of other key issues faced by HEIs in South Africa, including (1) resistance to change, (2) marginalisation of specific socio-economic groups, (3) inadequate infrastructure, (4) insufficient funding, (5) a lack of fourth industrial revolution (4IR) tools, and (6) inadequate skills training (Erika *et al.*, 2021:10; Mabidi, 2024:97). Although numerous studies have explored the various challenges relating to digitisation in HEIs, few have explored the strategic responses to digitisation from a change management perspective.

To address this gap, this study aimed to qualitatively examine, from a change management viewpoint, the digitisation strategies that HEIs employ during digital transformation efforts. For this purpose, a documentary analysis was conducted to gather available documents on management practices relating to the phenomenon under investigation. The results of this research could contribute to the knowledge on management practices and be used to inform the creation of more useful strategies.

1.2 Problem Statement

In the era that has been characterised by accelerated technological advancements, HEIs are increasingly under pressure to digitise pedagogical, administrative, and operational tasks. However, as articulated by Martec's Law, although the capabilities of technology progress exponentially, organisational changes lag considerably, and this is an inconsistency particularly evident within the traditionally decentralised and diverse stakeholder ecosystems of academia (Brinker & Baldwin, 2020:2).

This incapability to keep up with technological development is evidenced by research conducted by and Hughes (2011:9) and McKinsey (2023:43), which demonstrates that approximately 70% of transformation efforts fail to meet objectives. This failure rate according to Huges (2011:9) is mostly due to organisations focusing on measurable outcomes and attempting to enforce new employee behaviours without addressing deeper organisational dynamics, with HEIs being affected significantly.

Regardless of how important it is for HEIs to go digital, there is still a major gap between swiftly adopting new technologies and the human-centred change management that is needed for them to last. The current literature recognises that the effective implementation of new technologies requires several support dimensions (Carmo *et al.*, 2025:6) and that user preparedness is a critical factor of success (Law, 2024:1149; Ndaba & Naidoo, 2024:60). Additionally, the literature also focuses predominantly on digital transformation initiatives within manufacturing companies, often prioritising the technological aspects of disruption over the human and organisational impacts (Pacolli, 2022:276). This disconnect between digital tools and the users results in several identified barriers, including resistance to change, inadequate infrastructure, the digital divide, and a lack of skilled personnel (Erika *et al.*, 2021:10).

Yet, despite acknowledging these barriers, much of the available literature tends to overlook the human-centred change management approaches that are essential for sustaining digital transformation in HEIs.

Against this backdrop, it is unclear what change management strategies HEIs utilise to address the soft organisational factors to ensure the sustainability of these new technologies. This poses serious risks to HEIs in a globalised era where digital technologies are increasingly incorporated into teaching and learning and business administration processes to maintain the competitive edge.

Therefore, this study sought to address this gap by performing a documentary analysis to explore the digitisation strategies from a change management viewpoint that HEIs utilise during their digital transformation initiatives. This will be beneficial to management practices in HE, as it can inform institutions on how to navigate digital transformation successfully.

1.3 Causal Factors

The rapid growth of information and communication technologies, along with the COVID-19 pandemic's disruptive effects, has forced HEIs all over the world to adopt digital transformation strategies to stay competitive and keep their operations running efficiently. The rapid shift to distance learning and the digitalisation of administrative tasks has made existing weaknesses in institutional readiness more pronounced. This is one of the main reasons for this urgency. South African HEIs face ongoing challenges, including resistance to change, inadequate infrastructure, and skills shortages, all of which have been intensified by the rapid pace of transformation. The existing literature focuses on technological and organisational dimensions, frequently neglecting the adaptability of HEIs during digital transformation processes. The need for bridging this gap is exemplified by regional differences, wherein European HEIs experienced an 85% transition to online formats during the pandemic, while Sub-Saharan Africa encountered a mere 9% gross enrolment rate and insufficient digital readiness. These differences indicate that context-specific strategies are needed, especially in areas where digital infrastructure and capacity are still growing. This research aims to fill the gap in available knowledge by

exploring how HEIs can implement effective change management strategies to facilitate sustainable digital transformation.

1.4 Rationale and Significance

The preceding contextualisation clearly indicates a substantial gap in existing literature regarding the management of digital transformation in HEIs from an organisational change perspective, especially in South Africa. This problem is further emphasised by Pacolli (2022:276), who argues that organisations are not paying enough attention to the human and organisational effects of digital transformation. Consequently, it is essential to acquire a deeper understanding of the digitisation strategies, from a change management viewpoint, that HEIs utilise to execute digital transformation initiatives effectively.

This study (document analysis) aimed to address the gap as outlined in section 1.2 by exploring, from a change management viewpoint, the digitisation strategies that HEIs employ during digital transformation efforts. The findings of the study contribute to the literature on the change management strategies that HEIs employed in their digital transformation efforts. The study's recommendations add to the knowledge base on digitisation strategies, from a change management point of view, in digital transformation efforts and inform the formulation of future research questions to address practice problems. Finally, this study's results contribute to the global body of expert knowledge in management and can be used to inform the development of more useful strategies.

1.5 Primary Research Question

This study aimed to answer the follow primary research question:

- What is known from documentary responses about the digitisation strategies, from a change management perspective, that were employed by HEIs in their digital transformation efforts?

1.6 Secondary Research Questions

This study's secondary research questions are as follows:

- What challenges and limitations are documented in HEIs' digitisation strategies with respect to change management during the digital transformation?
- Which change management strategies have been associated with successful digital transformation initiatives in HEIs?
- How do institutional factors, including leadership, culture, and resources, influence the selection and efficacy of change management models in HEIs?

1.7 Research Objectives

1.7.1 Primary research objective

This study's primary research objective is as follows:

- To explore and analyse the digitisation strategies of HEIs, from a change management perspective, by reviewing documentary evidence

1.7.2 Secondary research objectives

The study's secondary research objectives are as follows:

- To examine the challenges and limitations documented in HEIs' digitisation strategies with respect to change management during digital transformation
- To determine which change management strategies have been associated with successful digital transformation initiatives in HEIs
- To evaluate the impact of institutional factors, including leadership, culture, and resources, on the selection and efficacy of these models

1.8 Theoretical Framework

Given how quickly digital tools are becoming popular and useful, HEIs face significant challenges in managing this sudden change effectively. To gain more understanding of how to address these challenges, this study utilised theoretical frameworks based on established change management theories and the technology acceptance model (TAM), concentrating on the technological aspects.

Kurt Lewin's change management model (as cited in Hussain *et al.*, 2018:123) is a well-known model that helps individuals understand how organisations change. This model

consists of three phases: (1) unfreezing, (2) changing, and (3) refreezing. According to Lewin (as cited in Hussain *et al.*, 2018:124), for change to succeed, organisations must first create a sense of urgency (unfreezing), then make the change (changing), and finally reinforce the new behaviours and processes (refreezing). Furthermore, this model can make digital transformation initiatives more effective, as demonstrated by a study that was conducted at a Jordanian Higher Education Institution (Abu Shaqra, 2024:19854).

Figure 1.2: Kurt Lewin's three-step model – Source: Adapted from Hussain *et al.* (2018:126)

Second, John Kotter's eight-step model of change (as cited in Appelbaum *et al.*, 2012:764) analyses the whole process and scope of leading change. In this model, Kotter (as cited in Appelbaum *et al.*, 2012:765) emphasises the need to create urgency, build a guiding coalition, and envision change. In this study, this model illustrates how important leadership and stakeholder engagement are for overcoming resistance and driving successful digital transformation.

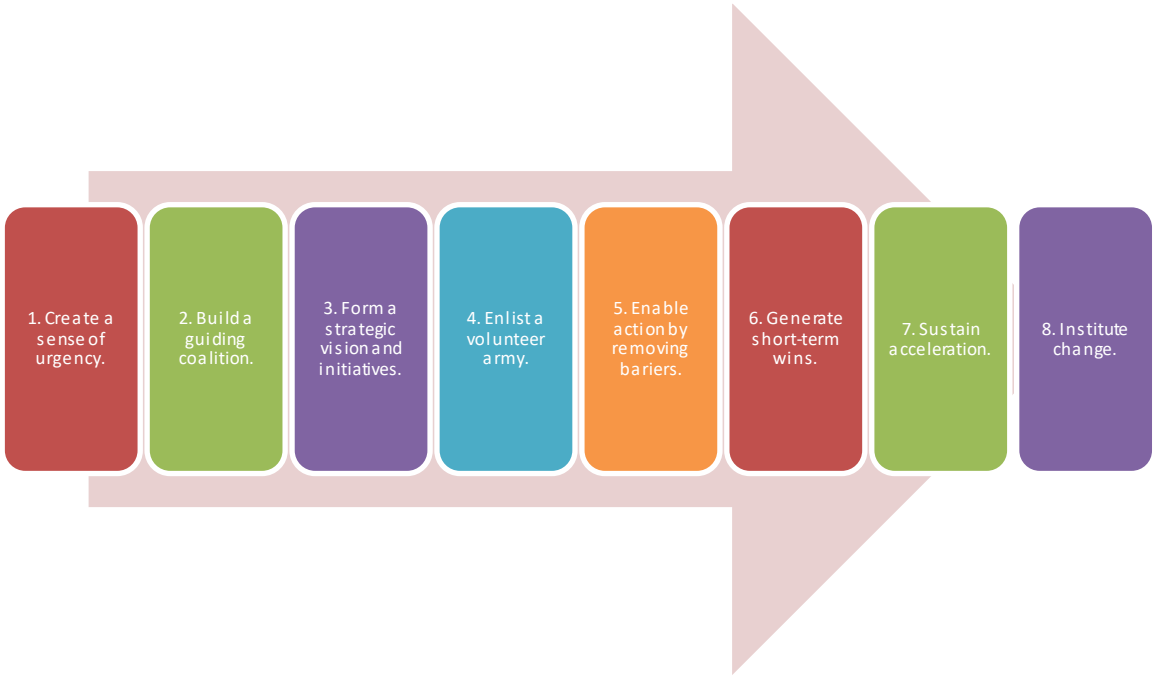


Figure 1.3: Kotter's eight-step change model – Source: Adapted from Appelbaum *et al.* (2012)

Moreover, the ADKAR model developed by Hiatt, asserts that change management comprises people components (Hiatt, 2006:7). The letters stand for the elements of Awareness, Desire, Knowledge, Ability, and Reinforcement. These are the stages everyone must go through to accept change (Hiatt, 2006:7). This model underlines the necessity of addressing individual concerns and promoting a conducive environment for change, especially in higher education settings where staff may be worried about emerging technologies and methodologies. The findings of this study underline the view that effective change management is paramount for successful digital transformation efforts. The aforementioned three models, which were adopted as a theoretical framework for this study, could assist leaders in addressing the challenges of change by engaging staff in the process of adjustment, which could potentially lead to the achievement of transformation goals.

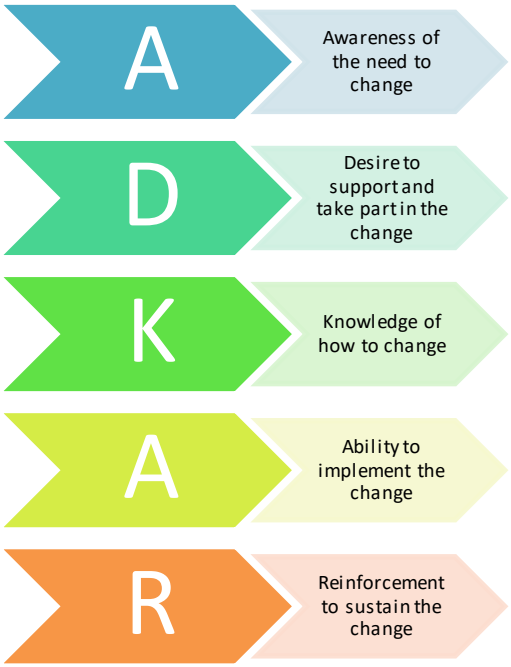


Figure 1.4: ADKAR model – Source: Adapted from Hiatt (2006)

In addition, the unified theory of acceptance and use of technology (UTAUT) also served as a component of this study's theoretical framework (Venkatesh *et al.*, 2003:467). The main aim of the UTAUT was to rationalise the processes that lead to the acceptance of technology in order to predict behaviour and provide a theoretical basis for the successful use of technology (Venkatesh *et al.,* 2003:467). Within the context of this study, the practical objective of employing the UTAUT was to look at the steps that professionals take before putting the digital systems into place.

1.9 Importance of the Study

This research is of significant relevance, since it explored the frequently neglected relationship between organisational change management and digital transformation in HEIs. The findings of this study provide useful, context-specific advice for improving global management practices, especially in South Africa, where socio-economic inequalities and a lack of infrastructure make it difficult to make changes. This study effectively connects the theoretical concepts that were employed with practical application, assisting HEIs to build resilience, equity, and competitiveness, despite continuous digital transformations. The findings could be used to guide policy formulation

and subsequent research, ensuring that HEIs remain responsive to ongoing technological advancements.

1.10 Scope of the Study

This study focuses on qualitatively exploring the change management models that are employed by HEIs globally in their digital transformation efforts. To achieve this, a literature review was employed to explore the available literature to gain a better understanding of the phenomenon. This study did not use human participants to explore this phenomenon. This study's theoretical framework was the established change management models, and the UTAUT, as outlined in Section 1.6 of this dissertation.

1.10.1 Field of study

This study concerns digital transformation and change management in HEIs.

1.10.2 Industry under investigation

The investigation in this study focused on the HE industry, involving a broad range of HEIs.

1.11 Research Method

This dissertation was structured using Saunders, Lewis, and Thornhill's research onion model (Saunders *et al.,* 2023:131), which is segmented into six distinct layers: research philosophy, research approach, research strategy, choices, time horizon, and techniques and procedures. An extensive examination of the nature and purpose of each layer is outlined in Chapter 3 of this dissertation.

1.12 Limitations of the Study

This study's findings, as well as their validity, depend upon the perspectives provided by the literature on the study's topic. The study primarily focuses on the change management models that HEIs employ in digital transformation efforts but does not explore this phenomenon in other organisations. Therefore, although the study provides valuable insights into the change management models that HEIs employ in their digital transformation efforts, it is important to acknowledge that the findings may not be generalisable to other organisations.

1.13 Layout of Chapters

This study is presented in a traditional mini-dissertation format. The following are the study's chapters:

Chapter 1: Introduction and Background of the Study

This chapter focuses on the study's introduction and background. The research problem and research objectives are clearly stated. Then, the importance and benefits of the study are discussed, and the key terms are defined.

Chapter 2: Literature Review

This chapter reviews the existing literature on digital transformation and change management, by specifically presenting and critically evaluating previous peer-reviewed studies, reports, and the theoretical framework (e.g., the organisational change models of Lewin, Kotter, and Prosci) to identify recurring themes, gaps, and contextual challenges such as resistance to change, infrastructural deficits, and the digital divide in HEIs.

Chapter 3: Research Methodology

This chapter offers a detailed explanation of the research design, methodology, and techniques that the researcher utilised to answer the research questions. It provides a discussion of the reasoning behind choosing a specific method and technique. Additionally, it describes the process of data collection and analysis conducted using ATLAS.ti version 24. Since this study is based on the existing literature, the researcher does not discuss sampling techniques or a questionnaire design. Instead, relevant articles, and institutional strategic plans that explore change management models in digital transformation initiatives are reviewed. This method provides a comprehensive understanding of the current body of knowledge and research on the research topic, serving as a basis for the research design and methodology.

Chapter 4: Presentation of Findings

This chapter provides a systematic presentation of the study's secondary data and findings. The chapter first presents an overview of the thematic analysis process, followed

by the presentation of the themes and sub-themes, with the categories. After that, the themes are discussed with illustrative quotes and supporting literature.

Chapter 5: Summary, Conclusions, and Recommendations

This chapter provides a summary of the findings, the study's conclusions, and implications of the results for practice. The chapter starts by giving a summary of the study, followed by a synthesis of the research findings and how they relate to the research questions and problem statement. Thereafter, it presents the conclusion and managerial recommendations for practice. Lastly, it offers suggestions for further research.

1.14 Conclusion

The information provided in this chapter makes us realise how important and difficult it is for HEIs to go digital. This chapter emphasises that the COVID-19 pandemic has expedited the advancement of digital technology, disrupting traditional administrative and educational methodologies. In addition, it points out that HEIs must remain competitive, efficient, and relevant in a globalised context.

Despite the necessity of digital transformation, HEIs still face several problems that make it difficult to put digital systems into place. These problems include differences in income and education, a lack of skills, poor infrastructure, and reluctance of stakeholders and staff to change. There has been extensive research on the technology parts of digital transformation, but not as much on the organisational change management methods that are needed to promote successful and long-term digital adoption in HEIs. This difference is especially clear in South Africa, where the rates of digital preparation and transition are lower than in other parts of the world. Consequently, tailored change management strategies must consider the specific operational, structural, and cultural traits of HEIs to deal with problems such as employee resistance and integrating old systems. Thus, for digital transformation in HE to work, it needs strategic leadership, effective change management, and solutions that fit the situation, so as to ensure that the institutions remain competitive and last for a long time.

1.15 Chapter Summary

This chapter provides an overview of the background information of the study. It explains the challenges faced by HEIs during digital transformation activities, e.g., resistance to change, a lack of digital infrastructure, and a shortage of skilled employees. It also details how the COVID-19 outbreak has accelerated the process of going digital around the world. Furthermore, the chapter identifies a significant research gap concerning the best possible change management strategies for HEIs that are engaged in digital transformation. By defining the study's objectives, questions, and methods, it lays the groundwork for exploring how HEIs may navigate digital change successfully utilising suitable organisational interventions. The following chapter reviews the literature on this study's research topic.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The current digital era is here to stay. Therefore, HEIs need to adapt and adopt to prevent the risk of lagging behind. Failure to embrace digital transformation may result in reduced student engagement, outdated curricula, and diminished competitiveness in the global education landscape (Singun, 2025:37).

In the current context of modern society, it is apparent that the 21st century is characterised by significant transitions towards digital and technological advancements. This shift promises a positive impact on businesses with an expected compound annual growth rate (CAGR) of 27.6% globally by 2030 (Dutta, 2025). Nonetheless, despite numerous benefits of digitisation, including value creation and operational efficiency and effectiveness, there appear to be a few challenges that organisations encounter (Tagscherer & Carbon, 2023:1). The issue is that a lack of a comprehensive and clearly defined strategy contributes significantly to the 70% failure rate of digital transformation efforts (Dutta, 2025). For HEIs, this means that they need to undergo a process of change to stay up to date and to remain globally competitive. Yet, we are equally aware of the fact that digital transformation challenges faced on the African continent are aggravated by several obstacles, such as inadequate funding, lack of digital infrastructure, and the digital divide and skills gap (Singh, 2015:2; Lubinga *et al.,* 2023:8; Babalola & Genga, 2024:12). This necessitates immediate and fair digital transformation initiatives that tackle infrastructure deficiencies, enhance digital literacy, and guarantee that every institution and student is included.

In the literature, numerous definitions exist regarding digital transformation (Kraus *et al.,* 2021:2; Nadkarni & Prugl, 2021:234; Hanelt *et al.,* 2021:1160). An evident feature of the definitions provided is that they do not conform to a single standard for everyone. The digital transformation handbook by Ris and Puvača (2024:3) differentiates between the academic and industry definitions of digital transformation. Ris and Puvača (2024:3) describe digital transformation from an academic perspective, as follows: "The incorporation of digital technology across all sectors of a business aimed at fundamentally altering the way a business functions and provides value to its customers." Additionally,

the authors characterise digital transformation from an industry viewpoint as the third stage of the digital revolution in business (Ris & Puvača, 2024:3). This indicates that the initial stage is digitisation, succeeded by digitalisation and finally digital transformation. These phases were covered within the introduction section in the first chapter of this dissertation.

In this study, digital transformation is defined as a form of technological and structural change intended to improve academic services to strengthen the digital skills of staff and students (Rahmadi, 2024:647). This signifies that HEIs utilise digital tools and technologies such as cloud computing, big data analytics, artificial intelligence (AI), and the industrial internet of things (IIoT) to promote innovation and improve business performance (Joel *et al.*, 2024: 617). The rationale for this is to ensure that HEIs remain relevant and competitive (Kraus *et al.*, 2021:1; Verhoef *et al.,* 2021:889). To attain this goal, it is imperative for HEIs to develop and implement context-specific strategies for the successful integration of digital technologies.

This chapter reviews the concepts related to digital transformation and change management within HEIs in the South African context. It explores the developing nature of digital transformation as a multidimensional process involving technological innovation and organisational change that is aimed at enhancing operational efficiency and effectiveness. The literature examines the challenges and strategies that HEIs face in managing this change, including leadership approaches, stakeholder engagement, and cultural resistance. It also considers models and frameworks intended to direct successful change management in higher education, emphasising the significance of coordinating technology adoption with people-centred practices and institutional goals.

2.2 Historical Overview of Digital Transformation

Digital transformation can be traced back to the industrial revolutions, where industries and civilisations were transformed by the introduction of new technologies (Grandinetti, 2020:93; Hollebeek *et al.*, 2021:5). The significance of understanding this type of transformation in context of this study is highlighted by Man and Man (cited by Ndaba & Naidoo, 2024:55), who asserted that the industrial revolutions have played an important role in changing the dynamics of HEIs in their efforts to stay relevant against all

technological odds. Although these authors highlight the transformative role of the industrial revolutions, it appears that their work largely addresses the technological side, thus neglecting the adaptation pressure often experienced by staff and students at HEIs.

The first industrial revolution brought about a major change in the way goods were made and is also called the mechanical Revolution. This change meant that people stopped making things by hand and started using machines powered by steam or water (Groumpos, 2021:465). The second industrial revolution was characterised by the invention of electricity and the assembly line and is sometimes referred to as the Technological Revolution (Groumpos, 2021:465). In the HE sector, this revolution is characterised by people attending classes and receiving lecture materials in the form of handouts and textbooks (Beno, 2019). The third industrial revolution was based on machines and automation, which brought computers and communication technology into the manufacturing process (Groumpos, 2021:465). During this period, educational access expanded, and Web 2.0 technologies were employed to augment conventional educational methods through blogs, podcasts, video-sharing platforms, and associated participatory technologies (Beno, 2019).

Finally, the fourth industrial revolution changed the way industries worked by making them more connected, using advanced data analytics, automation, and advanced manufacturing (McKinsey, 2022). This era was fuelled by four fundamental types of disruptive technologies that expanded the bounds of what was once achievable: the internet of things (IoT), AI, machine learning (ML), big data and analytics, and advanced robotics (McKinsey, 2022).

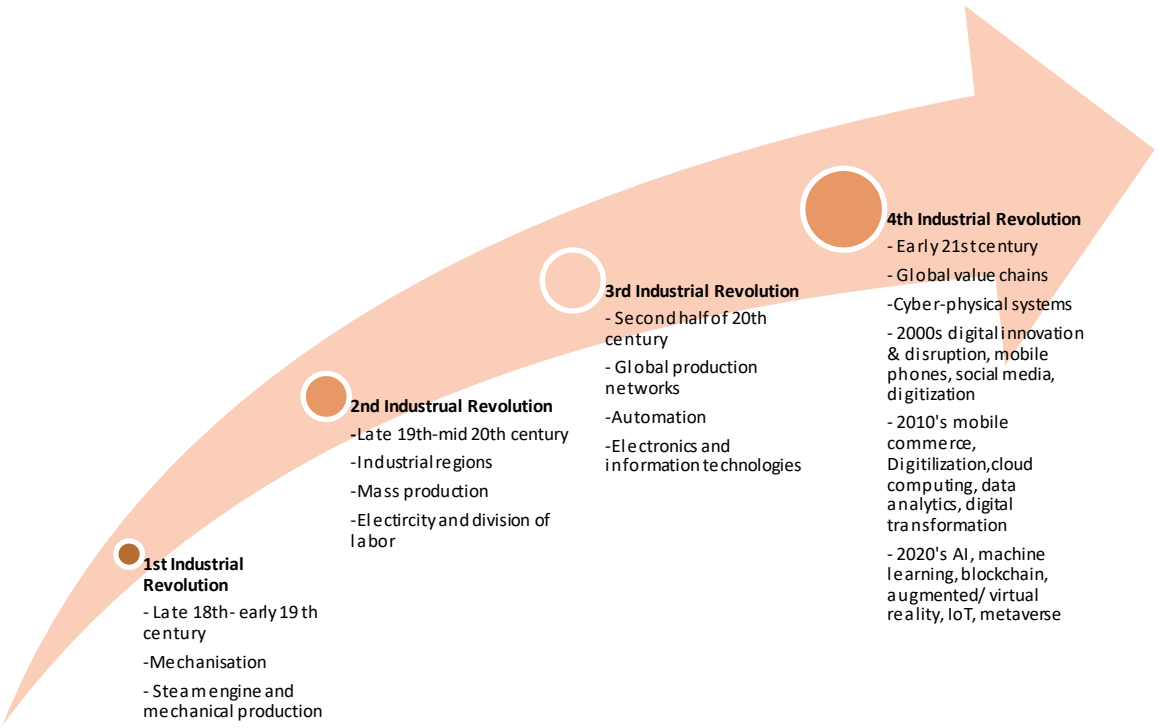


Figure 2.1: The four industrial revolutions – Source: Adapted from Rodrique (2024)

The principles of Industry 4.0 laid the foundation for Industry 5.0, which we are witnessing today. In other words, Industry 4.0 laid the groundwork for Industry 5.0, which emphasises the cooperative interaction between humans and robots (Jabrane & Bousmah, 2021:634). According to Al-Emran and Al-Sharafi (2022:1), Industry 5.0 entails the cooperation between these technologies and educators and students to enhance the efficiency and effectiveness of teaching and learning. Consequently, this paves the way for Industry 6.0, which is expected to further transform the workforce.

In the context of the aforementioned technologies, it is also noticeable that several technological laws, including Moore's law, Gilder's law, and Less's law, have sped up or multiplied the industrial revolutions (Zhu *et al.*, 2023:307). Moore's law, which is well-known for its multiplier effect, suggests that a silicon chip's transistor doubles in capacity every two years (Moore, 1965:11). The realisation of this prediction sparked a revolution in electronic devices, resulting in the development of sophisticated telephone systems, mobile communication devices, and inexpensive home computers (Smith, 2019:45). Moore's law played a significant role in the development of the technological world of the

late 20th and early 21st centuries, because of its wide-ranging effects, which have fuelled social change, economic advancement, and technological advancement (Johnson, 2020:78).

Although the foundations of digital transformation have been laid by the various industrial revolutions to achieve their current form, the researcher is of the view that the organisational responses and adaptations are equally important. These responses are often not highlighted in the literature on industrial revolutions. However, a clear understanding of these historical developments is important for the development of effective change management strategies in HE's digital transformation efforts.

2.3 Historical Overview of Organisational Change

Organisational change is defined as planned change to organisational components aimed at increasing an organisation's effectiveness (Cawsey *et al.,* 2012:2; Olivier, 2021:44). However, Burke's (2014:28) view suggests that change is a process of continuous adaptation. In the context of this study, it means that HEIs should see change as a continuous process of institutional evolution, rather than a disruptive event aimed at enhancing effectiveness. According to Olivier (2021:45), during the process of change, there are change agents, whose roles are to be catalysts with shared responsibilities to ensure that change activities are managed appropriately (Olivier, 2021:45). This implies that change agents play a fundamental role in solidifying an institutional evolution mindset for lasting organisational effectiveness.

Additionally, Burke (2014:29) argued that the historical development of organisational change can be traced back to the Old Testament in the Bible, specifically Exodus 18:13–27. These verses outline the burden that Moses faced in managing every conflict among the Israelites. In parallel, this illustrates the digital burden encountered by HEI leaders, which cannot be resolved through centralised power (Olabiyi *et al.*, 2025:20). Consequently, Jethro recognised the negative impact and proposed a more practical organisational system of appointing competent leaders over groups of thousands, hundreds, fifties, and tens (Burke, 2014:30). As a direct outcome, this recommendation resulted in the creation of a pyramid delegation structure, which is considered to be one of the first documented examples of organisational restructuring. Thus, the foundations of hierarchical management, decentralisation, and workload allocation were established.

The example reflects a top–down management style that modern digital transformation, which often requires decentralisation, is having a hard time getting rid of (Mabotha & Ngcamu, 2025:13).

Furthermore, Burke (2014:31) stated that an important period in organisational transformation occurred during the 20th century. It started with Frederick Taylor's scientific management in the early 1900s, which used a mechanistic perspective of labour to promote efficiency and standardisation. The human relations movement was ushered in by the Hawthorne Studies of the 1920s and 1930s, which turned their attention to the human dimension and emphasised the impact of social interaction and group dynamics (Burke, 2014:32).

Industrial psychology emerged in the middle of the 20th century, studying job satisfaction, leadership, and motivation (Burke, 2014:33). Concurrently, the development of survey feedback techniques made it possible to apply participatory approaches to organisational development (OD). OD, which promoted systemic, data-driven change based on cooperation and ongoing learning, became widely adopted in the 1960s and 1970s (Burke, 2014:33). Organisations began adopting the managerial grid, sensitivity training, and socio-technical systems at the end of the century, demonstrating a growing awareness among structure, technology, and people (Burke, 2014:33).

The rise of socio-technical systems in the late 20th century is a prime example of the theoretical basis for comprehending digital transformation today, as it does not distinguish between the machine and the person.

2.4 The Philosophy of Higher Education

According to Barnett (2022:15), philosophical insight into the nature of HEIs or universities can be regarded as a very broad field of investigation. In other words, there is no single reality of how HEIs or universities should be understood. The author further indicates that work on the philosophical insight into universities started with German philosophers in the early 19th century. The philosophers were focused on the concept of the university, what it meant for one to grow as a student, which academic disciplines mattered, and what the connections of those disciplines are, as well as topics such as the nature of the mind and

reason and the link between the university and the government (Barnett, 2022:15). Nonetheless, what mattered for this comprehension is that universities ought to be viewed through the lens of systems theory (Memarian & Doleck, 2025:12250). The systems theory aims to clarify and justify the characteristics of systems and the relationships among the individual components that are part of a system (Friedman & Allen, 2011:3). Systems theory claims that the whole exceeds the total worth of its separate parts. The system cannot be fully understood by simply identifying its individual elements. This view highlights that universities ought not to be seen as stand-alone systems that overlook the needs and expectations of the larger society around them. Consequently, HEIs are important in equipping students for their post-university existence – socially, professionally, ethically, and in promoting the relationships and networks that shape their personal and career development (Barnett, 2022:16).

2.5 Defining Change Management

Change management involves guiding individuals through changes. It comprises the strategies, tools, and techniques for managing the human aspects of change to achieve desired business results (Baalmans *et al.*, 2021:15). As mentioned by Hashim *et al.* (2022:482), change management in digital transformation initiatives is crucial because it enables the match between the technological shifts and human adaptation alignment.

According to Baalmans *et al.* (2021:15), there are three kinds of change: natural change, planned and managed change, and unplanned or revolutionary change. Natural change involves all the learning processes that happen within an organisation, as its components respond to environmental conditions (Baalmans *et al.*, 2021:15). Planned and managed change involves directing evolutionary processes or actively controlling the direction of change and learning. Lastly, unplanned or revolutionary changes, as suggested by their name, are unexpected or unplanned changes that can potentially have severe impacts on an organisation.

In context of this study, planned and managed change is crucial because institutions need to carefully guide staff and students through new technologies to avoid problems (Mabotha & Ngcamu, 2025:9).

2.6 Drivers and Trends in Digital Adoption

The COVID-19 pandemic has been well documented in literature as an accelerator and driver of digital transformation globally, as it has reshaped the way we view and approach work and education (McKinsey, 2020; Soto-Acosta, 2020; Savic, 2020; Chukwere, 2024). This means that the way we view and approach work and education has completely changed, including how HEIs deliver teaching, engage students, and manage operations.

2.6.1 Core drivers of digital adoption

Industry analyses, such as the 2025 Gartner report, highlight several drivers for higher education's digital transformation. A key driver is the responsibility to provide seamless, highly personalised digital experiences that match the conveniences demanded elsewhere in life (Gartner, 2025). Similarly, Hashim *et al.* (2022:487) reinforces this view, emphasising that digital transformation should focus on students and their ability to get jobs. In addition to this, colleges and universities concurrently experience key financial challenges due to uncertain enrolments and rising expenditures, triggering a search for functional efficiencies and new sustainable revenue streams (Gartner, 2025:1). This aligns with Mabotha and Ngcamu's (2025:9) finding that financial stress is a barrier that needs innovative leadership. In other words, HEIs need leaders who can develop strategies to generate additional revenue streams. This is essential to ensure the long-term sustainability of HEIs.

Furthermore, Gartner (2025) stresses the need to demonstrate the value of qualifications, urging universities to add value to their "employability stack" by using technologies that connect student learning with work outcomes (Gartner, 2025). In the end, these efforts are based on a need to use more data to make decisions that will help students to make an institution more effective and demonstrate the value of education (Gartner, 2025). However, Olabiyi *et al.* (2025:13) caution that distributed management and leadership capacity are equally important but cannot effect change alone. This means that although data and technology are important aspects, they are insufficient without strong leadership and management capabilities.

A significant factor that stands out among these drivers is the desire to improve competitive advantage and change how organisations work (Broccardo *et al.,* 2023:1;

Lund, 2024). This seems to be significant in the context of HEIs where the expectation is to enhance institutional competitiveness, modernise academic delivery, and streamline administrative processes. As a result, this portrays the significant role that the COVID-19 pandemic played as a driver of digital adoption in a short time, which presented HEIs with both opportunities and challenges. This analysis is supported by McKinsey (2020), highlighting that the COVID-19 pandemic acted as a catalyst in digital transformation, achieving seven years of change across all sectors and regions.

Many industries, including HEIs, have somewhat changed as a result (Omol, 2023:241). This suggests that plans had to be made swiftly to handle the human, cultural, and technological aspects of this change for long-term success. Some scholars say that this quick change was necessary to improve operational efficiency, make it easier to make decisions based on data, and create new ways for people to interact and come up with new ideas (Bharadiya, 2023:19). For example, AI algorithms can now handle vast amounts of data and provide one with important data sets to help one make decisions. In addition, technologies such as ML and robotic process automation have made it easier to do repetitive tasks, enabling workers to focus on more important ones (Bharadiya, 2023:21). In the end, the convergence of industry drivers and academic views indicates that digital transformation in HEIs is as much a challenge for people and leaders as it is for technology.

2.6.2 Core trends of digital adoption

The 2025 Gartner report states that there are three main themes that drive important trends in higher education technology. First, organisations are rethinking their AI strategies so that they can move beyond basic testing and, instead, give measurable benefits. This is echoed by Hong *et al.* (2025:5), who indicates that the use of AI in HEIs is linked to the sustainable development goals (SDGs). This means that HEIs are looking at not only how well AI strategies work with technology, but also how well they help the SDGs.

Second, Gartner (2025) highlights that there is a clear trend towards making individuals more employable by utilising integrated career support technologies and personalised student experiences throughout their lives. This is supported by Negm (2026:626), who demonstrates how AI integration into curricula can improve employment prospects for life.

Lastly, universities are also working on modernising their ability to build capacity so that they can be sustainable in the long term. This entails the discontinuation of legacy systems and the shift from reactive vulnerability management to proactive cybersecurity exposure management, which was designed to protect complicated cloud-based infrastructure (Gartner, 2025; Mabotha & Ngcamu, 2025:17).

2.7 Benefits of Digital Transformation for HEIs

The current literature demonstrates that digital transformation provides several benefits to HEIs that go above mere technology implementation. These benefits include improved service delivery, more student engagement, higher operational efficiency, and more competition among institutions (Mabotha & Ngcamu, 2025:8; Li *et al.* 2026:12).

According to a study conducted by Fernández *et al.* (2023:12361), 94% of university leaders said that digital transformation plays a crucial role in improving student experiences. This means adding digital platforms to enable personalised learning, virtual teamwork, and flexible access to educational materials possible. The authors also found that digital transformation makes institutions more competitive and flexible in their strategies. As universities transition into "digital institutions", they enhance their readiness to address global educational needs and maintain relevance in a rapidly changing environment (Fernández *et al.,* 2023:12369).

Another important benefit is that it makes teaching and administration more efficient (Alenezi, 2021:3). Examples of these technologies that make repetitive tasks easier are AI, ML, and robotic process automation, which enable management and staff to focus on more important strategic tasks. It is important to note that these tools not only make people more productive but also make it easier for them to make decisions based on data, which is important for planning and governance.

Additionally, Shard *et al.* (2024:4) state that digital transformation helps innovation and accessibility. This means that online learning platforms and digital resources reduce geographical obstacles, accommodate various learning preferences, and encourage inclusive education. This is an extremely important aspect of digital transformation, especially in broadening access to HE and promoting continuous learning.

2.8 The Impact and Challenges of Digital Transformation on Organisations and People

2.8.1 Prioritisation

According to Alenezi (2021:10), HEIs often prioritise urgent issues over significant ones. In other words, HEIs spend more time on quick outcomes, which cause delays in essential investments such as developing skills that take long to learn. Alenezi (2021:10) further mentions that there is a lack of a clear road map and funding, especially in terms of scheduled digitisation strategies. Thus, it can be concluded that these tendencies in prioritisation will give rise to a serious concern, given the current digital landscape, which highlights strategic planning issues. This concern reflects in the broader literature, where researchers argue that a strong focus on short-term wins weakens the long-term sustainability of digital transformation (Tang *et al.*, 2025:9; Mabotha & Ngcamu, 2025:12). Although the short-term wins indicate considerable progress, they also hide structural challenges beyond the surface level. This is supported by Alenezi (2021:12), who states that it is significant for HEIs to develop clear strategic road maps to be better placed to leverage digital transformation for improvement and availability.

2.8.2 Employee resistance

Although digital transformation introduces fundamental changes in business models, processes, and organisational structures, it also leads to uncertainty among employees (Kraus *et al.*, 2022:1). Consequently, numerous businesses face the inability to fully implement digital transformation, because of employee resistance to change, which is seen as one of the most pervasive obstacles (Dutta, 2025; Charles *et al.*, 2024:177). Employees' hesitance to accept the introduction or implementation of digital tools and technologies in both small and large organisations is a well-known phenomenon (Baalmans *et al.,* 2021:27). One of the major reasons behind this resistance is the lack of a clear road map or well-defined strategy that highlights the benefits and reasons for digitally transforming business models and processes (Baalmans *et al.,* 2021:27). In such cases, employees experience confusion and a lack of clarity regarding their future career prospects, which often leads to the fear of job losses and consequent resistance (Dutta, 2025). Therefore, a well-structured and comprehensive change management strategy is essential for organisations to overcome such challenges.

2.8.3 Dynamics of employee resistance

2.8.3.1 Resistance as a fear of potential job loss

Employees exhibit fear concerning potential unemployment and the threat of displacement by digital technologies, leading to their resistance (Agnes, 2022:33). To describe this phenomenon, the theory of perceived usefulness or TAM (Park *et al.,* 2022:3) has been employed against the advent of digital technologies to link it to the adverse outcome of resistance as a fear of potential job loss. This theory suggests that employees experience anxiety surrounding job losses because of insufficient skills required to understand and utilise technologies, among other reasons (Agnes, 2022:33). This could lead to job insecurity, which is considered a primary factor in employee resistance. Furthermore, this also reflects greater leadership challenges when it comes to digital transformation and change. It means that employees experience a lack of trust in leadership, especially when communication about long-term strategic goals is insufficient and unclear.

2.8.3.2 Resistance as a mismatch between employees and technology

According to Cranefield *et al.* (2023:107), it is evident that these digital technologies pose some challenges to employees, because they are used to legacy systems and outdated processes. As a result, Sholler (2020:455) mentions that this leads to employees experiencing a mismatch due to their insufficient familiarity with these technologies, highlighting a lack of understanding and skill. The outcome of this is technostress, which refers to stress and anxiety caused by the need for employees to use these tools (Sholler, 2020:456). Therefore, technostress emerges as a critical barrier to successful digital transformation, stressing the need for continuous support and skill development among employees.

2.8.3.3 Resistance as a response to the loss of identities and social relationships

Employees are worried that their ability to make decisions is being limited, which means that they are afraid of losing the ability to make decisions on their own, which would limit their independence (Mosseri *et al.*, 2023:1687). Furthermore, Newlands (2021:721) emphasises that employees view these technologies as taking on production roles, resulting in a perceived reduction of their control over processes. Moreover, this kind of

resistance will probably make employees less likely to interact with one another at work, thereby changing how well they work together (Mosseri *et al.*, 2023:1689). Consequently, if these issues are not resolved, organisations may experience a drop in both employee engagement and overall workplace performance.

2.8.4 Legacy systems and security concerns

Legacy systems are considered to be a significant obstacle associated with digital transformation. The reason for this is that outdated technological infrastructure delays the integration of old technologies and modern ones, resulting in processes that require considerable financial and technical resources (Warner & Wäger, 2019:332). Research conducted by Fitzgerald *et al.* (2013:9) indicated that 45% of organisations experienced challenges in their digital transformation initiatives due to the difficulty of integrating legacy systems with modern technologies. Similar conclusions were drawn by Berghaus (2016:138), emphasising that maintaining innovation proves to be difficult when current infrastructure is too outdated to accommodate new digital technologies.

Furthermore, the digitisation process often involves the gathering and handling of large volumes of sensitive data, which poses serious security risks to organisations (Lu, 2024:8). As a result, cybersecurity risks and data privacy concerns intensify with digitisation, compelling organisations to resolve innovation with adherence to regulations such as the General Data Protection Regulation (GDPR), or the Protection of Personal Information (POPIA) Act in the South African context (Ahmad *et al.,* 2023:15). Against this backdrop, it is evident that the compliance of these regulatory requirements is a necessity, which should be seen as an opportunity to build trust and enhance data governance, rather than a stumbling block.

2.8.5 Digital skills gap and workforce training

In the advent of the digital storm, many organisations are staring the digital skills gap challenge in the face (Bughin & Catlin, 2020:14). This means that organisations lack professionals who are competent in emerging technologies, such as AI and data analytics, that need targeted upskilling initiatives (Bughin & Catlin, 2020:14). According to Fitzgerald *et al.* (2013), there is a global lack of IT and digital literacy skills. The authors predicted that over 50% of employees will need to learn new skills by 2025. This is

currently evident in many industries, including the HE sector, where employees need to undergo skills training. A study by Hanelt *et al.* (2021) corroborates this perspective, indicating that 70% of executives prioritise upskilling and reskilling the workforce. Organisations that are dealing with these challenges may set up programmes for continuous learning, form partnerships with educational institutions, and allocate resources towards the development of digital skills through online courses and workshops.

2.8.6 Misalignment between organisational culture and digital goals

The disparity between organisational culture and digital objectives constitutes a significant but under-researched challenge in digital transformation. Research indicates that risk-averse or hierarchical cultures delay agility, blocking organisations from adopting iterative development methodologies or experimenting with advanced technologies (Kane *et al.,* 2015:5). Businesses that stick to the traditional way of making decisions often have a hard time giving up power, which is necessary to encourage new ideas (Fitzgerald *et al.,* 2013:11). Top–down information cannot make a shared vision for change, so this cultural unwillingness to share power not only slows down implementation but also makes employees less engaged (Singh & Hess, 2017:8). Therefore, to ensure long-term results from digital transformation initiatives, cultural realignment should be as important as technology investment.

2.9 Digital Transformation (DX) and Leadership

Effective leadership is essential for facilitating transformation, necessitating skills and characteristics for successfully steering organisations (Tagscherer & Carbon, 2023:100039). This means that leaders should be able to quickly and easily adapt to the changing needs of the business, while also dealing with the Volatility, Uncertainty, Complexity, and Ambiguity (VUCA) landscape (Bundtzen & Hinrichs, 2021:35). To achieve this, leaders must embrace essential leadership qualities for digital transformation (DX), such as fostering flat hierarchies, empowering employees, showcasing digital skills, and participating in strategic partnerships and ecosystems (Tagscherer & Carbon, 2023:100039). In addition, true leadership in DX requires taking

risks, encouraging teamwork, and being aware of and actively managing diversity and cultural differences (Öngel *et al.,* 2023:1; Gao & Gao, 2024:362).

2.10 Leadership Solutions

The digital transformation in any business poses a complex challenge that leaders must actively address to succeed within a fast-paced and constantly changing environment, as digitalisation entails numerous different aspects and perspectives that must be considered (Tagscherer & Carbon, 2023:11). By integrating the leadership frameworks listed in Table 2.1, businesses can successfully navigate the complexities of digital transformation, thus ensuring sustainability and long-term growth (Petrov *et al.*, 2023:175).

Table 2.1: Leadership themes and frameworks for successful digital transformation

Themes	Leadership Framework and Description
Visionary Thinking	Transformational leadership is important because this kind of leaders must be able to articulate a clear and inspiring vision for digital transformation, while aligning teams with future goals (Schiuma *et al.,* 2024:428). According to Schiuma *et al.* (2024:429), there are several key competencies that a transformational leader should poses in an era defined by digital tools and technologies: they should be (1) pragmatic, (2) sustainable in their thinking, (3) a facilitator, (4) a communicator, (5) a catalyst, and (6) knowledgeable to lead successful organisational digital transformation initiatives.
Empowerment and Delegation	Servant leadership gives employees the freedom to make their own choices, thereby encouraging independence and responsibility (Salem *et al.*, 2024: 26). Salem *et al.* (2024:26) further indicate that servant leadership practices significantly impacted the implementation of digital transformation among employees, particularly affective empowerment and trust.
Experimentation and Risk Taking	Entrepreneurial leadership promotes experimentation, innovation, and strategic risk taking to facilitate digital transformation. According to Awashreh and Hamid (2025:1), entrepreneurial leadership means encouraging individuals to take risks, getting

	around bureaucratic red tape, and supporting new ideas. Empowerment, by contrast, means giving individuals the freedom, resources, and support they need to make a real difference in reaching an organisation's goals (Awashreh & Hamid, 2025:1).
Adaptability and Agility	Agile leadership is known for leaders who are flexible and able to change their plans quickly when technology and the market change quickly (Tagscherer & Carbon, 2023:10). According to Stoiko (2024:55), agile leadership plays an important role in the success of digital transformation initiatives.
Collaboration and Teamwork	Collaborative leadership is crucial for digital transformation, as successful implementation requires cross-functional collaboration and teamwork to integrate new technologies effectively (Tagscherer & Carbon, 2023:11). Besides this, changes in businesses necessitate increased cross-functional collaboration, as research indicates that digital transformation requires cooperation among IT, HR, finance, operations, marketing, and R&D, among other areas (Ahmad *et al.,* 2023:205).
Supportive Work Environment	Servant leadership creates a culture that gives people the tools they need and takes away things that make it harder for digital transformation to happen (Salem *et al.,* 2024:26).
Trust and Transparency	Ethical leadership necessitates that leaders build trust with employees and stakeholders through open and transparent communication, as authentic leadership concurrently affects the employee's engagement, performance, and transparent communication (Hadziahmetovic & Salihovic, 2022:558).
Humility, Employee Orientation and Soft Skills	Authentic leadership wants leaders to balance between technical skills and interpersonal leadership, promoting a supportive culture, trust, empathy, emotional intelligence, and resilience, which are essential for the implementation of successful digital transformation initiatives in an organisation (Durrah *et al.*, 2022:1911).

Cultural Awareness and Diversity	In the digital age, inclusive leadership is essential because leaders must support teams that are diverse and multicultural, deal with differences between generations, and make the digital workplace welcoming to everyone (Wolor *et al.,* 2021:105). Besides this, the style of inclusive leadership emphasises the value of equity, diversity, and inclusion, and promotes decision-making processes that involve different perspectives (Karimi & Khawaja, 2024:2403).

Source: Compiled from various authors, as indicated in the table

One of the key responsibilities of leaders in transformation or optimisation projects is to ensure that they lead their teams effectively through the new DX journey. Given this, change management plays a critical role in ensuring that the chances of failures and resistance are low, to enable the effective implementation of the DX changes. These organisational changes must be properly introduced through an effective change management process (Pacolli, 2022:279). Part of the transformation journey is to ensure that an effective communication plan is in place, so that everyone understands and is aligned with the plans and implementation of the new changes. Effective communication also assists organisations' leaders in communicating with everyone in the business regarding the latest change and providing necessary clarifications (Ehinmilorin, 2021:6).

2.11 Strategies for Managing Organisational Change

A multifaceted approach is fundamental in effectively managing organisational change propelled by digital technologies. These facets are discussed in detail in the following subsections.

2.11.1 Effective planning

For an organisation that has a stable foundation from which to deploy digital tools and technologies, appropriate planning is needed (Bonfield *et al.,* 2020:225). This requires planning analysis against existing digital capabilities and infrastructure to map gaps. Detailed and systematic digital road mapping that is compatible with organisational goals and objectives must be created. In Gadzali *et al.* (2023:766) view, the incorporation of stakeholder analysis, risk analysis, and a phased implementation schedule is essential for mitigating potential disruptions. Consequently, comprehensive digital planning is of

paramount importance, as it transforms challenges into opportunities for sustained growth and optimised technological utilisation.

2.11.2 Change management models

Organisational change refers to the process of transitioning from a present state to a desired future state, which is often complex and does not occur overnight (Mclvor, 2025:31). For this to happen, an organisation requires a period of transition to learn how to achieve the desired future state (Mclvor, 2025:31). To successfully manage this transition, specific actions and procedures are essential. Organisations that do not use systematic change management approaches often face employee resistance, inefficient processes, and poor use of technology. These issues significantly hinder the success of transformational efforts. Harrison *et al.* (2021:4) confirmed this observation in their research. They emphasised that without clear change management frameworks, digital transformation efforts could lead to fragmented implementation. This could lead to less staff engagement and ineffective use of technology. In other words, without a strategic organisational change management framework, organisations risk potential disruptions, failed efforts, and financial losses. This is also supported by Bustinza (2018:13), since the author argues that organisations that lack a good change strategy typically suffer operational failures and cannot derive digital transformation value.

Several change management models offer a systematic framework that can be adopted by organisations with a view to bringing about digital transformation. Kotter's eight-step change model is no exception, in that it is well known for highlighting urgency creation, the establishment of a guiding coalition, and short-term benefits (Bustinza, 2018:13). Comparatively, the ADKAR model encompasses the person-side elements of change regarding aspects such as ensuring that the stakeholders are properly prepared and motivated. Furthermore, McKinsey's 7S framework, i.e., strategy, structure, systems, shared values, skills, style, and staff, has been successfully implemented to bring about digital transformation by getting all the organisational elements to function together in perfect harmony (Demir & Kocaoglu, 2019:117).

2.11.3 Training and development

Training and developmental activities are strategies for equipping employees with skills and knowledge that are crucial to managing new digital tools and processes (Chaanoun, 2022:20). To begin with, continuous learning opportunities such as workshops, e-learning programmes, and experiential training programmes should be included within an organisational culture for developing digital competence (O'Dea, 2023:96). This is particularly important in HEIs, where digital transformation is not merely a technological necessity, but also necessitates human capital development. As evidence suggests, organisations that invest in digital competence and digital literacy amongst employees tend to report higher levels of innovation and job satisfaction (Chaanoun, 2022:22).

Furthermore, García-Morales *et al.* (2021:616059) also stated that the disruption caused by COVID-19 made the need for digital skills even more urgent, making professional development a strategic necessity. In agreement with this, O'Dea (2023:97) argues that developing a sense of academic and social inclusivity on the staff and student sides is dependent upon their ability to feel confident in digital spaces. Thus, digital training is not merely a supplementary feature to institutional planning. It is a necessity for sustainable transformation.

2.11.4 Effective communication

According to Holm *et al.* (2025:12), effective communication is also a critical digital transformation requirement that assists in creating openness, managing resistance, and creating a culture of cooperation during organisational change. Phillips and Klein (2022:194) observe that utilisation of a series of communication channels, such as emails, intranets, town hall meetings, and social media technologies, facilitates frequent message communication across the organisation. The use of effective communication during the whole change process assists in overcoming uncertainties and creating confidence amongst staff (Ruël *et al.*, 2020:155). Utilisation of communication channels is also critical, as they can facilitate speeding up message communication. To create a two-way communication channel that really gets stakeholders involved, feedback loops must be used effectively.

2.11.5 The role of leadership in navigating digital transformation

There is a vast amount of written work that draws attention to the central role that leadership plays in adopting organisational change and navigating DX (Manga, 2023:35; Dolk & Johansson, 2024:2; Ali Emran & Elhony, 25:4070). Successful leaders play a crucial role in developing the vision, rallying the employees, and dealing with the transition (Khin & Ho, 2019:179). Transformational leadership is a highly influential style that can be used in achieving a successful digital transformation, according to Khin and Ho (2019:179). Transformational leadership is defined by inspiring others, leading them, and encouraging innovation (Mang & Ho, 2019:179). Digital transformation and change management are dependent on leadership, and there is a knowledge gap about how various styles of leadership influence each other and how leaders deal with cultural and ethical issues during digital transformation.

2.11.6 Continuous monitoring and evaluation during organisational change

In an era where digital technologies are incessantly evolving, it is imperative to implement transforming business models to maximise processes, customer value propositions, and ongoing monitoring and evaluation (Yu & Moon, 2021:12; Irimiaş, 2021:160; Phillips & Klein, 2022:195). This is aimed at keeping the goals of an organisation in line with the desired outcomes in transformative processes. According to Yu and Moon (2021:12) and Irimiaş (2021:160), this entails the use of key performance indicators (KPIs) and feedback mechanisms for taking stock of the effectiveness of digital integration and the provision of timely and appropriate interventions. Therefore, the adoption of regular surveys and the use of performance monitoring tools, as well as benchmarking with industry standards, can be a rich source of information regarding the trajectory of change and its effects on the organisational performance (Carreno, 2024:3; Mtau & Rhul, 2024:69). This is imperative in turning change management into a dynamic process that accommodates improvement interventions in real time, based solely on the characteristics of process monitoring.

2.12 Conclusion

In this chapter, the digitalisation of HEIs is discussed in detail, in terms of its main barriers and key enablers. The literature stresses that, notwithstanding various advantages, HEIs

encounter obstacles such as employee resistance, leadership challenges, inadequate infrastructure, and insufficient digital competencies. The chapter emphasises that digital transformation entails not only adopting new technology but also implementing suitable change management practices that consider organisational culture, leadership, and human factors. Lastly, the literature emphasises that HEIs need to create and employ change management frameworks that are context-specific for them to overcome the barriers to DX and make long-lasting improvements in the rapidly changing education landscape.

2.13 Chapter Summary

In this chapter, the researcher looked at what other scholars have written about digital transformation in HEIs. The chapter gave a brief historical overview of digital transformation, looked at the main drivers and trends behind DX, and explored the challenges that HEIs face, such as resistance to change, inadequate infrastructure, and skills shortages. The role of leadership and organisational culture in digital transformation is discussed, and an analysis is provided of the elements of employee resistance, including fears of job loss and mismatches between employees and new technologies. Furthermore, the chapter reviewed effective change management strategies, such as adopting organisational change frameworks and addressing human factors such as employee resistance, fear of job loss, and cultural shifts. Overall, this chapter concludes that successful DX relies not only on the technological aspect, but also on good leadership and well-managed processes of organisational change.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this study was to qualitatively examine the digitisation strategies, from a change management point of view, that HEIs employ in their digital transformation efforts. This was accomplished through a documentary analysis to produce findings that would directly answer the research questions and offer reliable, valid, and meaningful understanding of the phenomenon under investigation. In particular, the document analysis was used to produce data that could be methodically examined to find patterns and eventually support the findings presented in this study's Chapter 4.

This chapter provides a detailed description of the research design, methodology, and techniques that the researcher used to answer the research questions. The chapter starts by explaining the research design that was utilised, followed by a detailed discussion of each layer as outlined by Saunders *et al.* (2023:131), and how it was employed in the study. The trustworthiness, ethical consideration, and limitations of this study's research design are also discussed.

3.2 Research Design – The Research Onion Model

The methodology section delineates a comprehensive research framework that specifies how research ought to be conducted (Melnikovas, 2018:33). In this study, the researcher utilised the research onion model developed by Saunders *et al.* (2023). The purpose of this model is to describe the different levels that the researcher needs to create a research methodology. This model serves as a significant framework that facilitates a comprehensive understanding of the research design. It has the following layers: (1) philosophy, (2) approach to theory development, (3) methodological choice, (4) strategy(ies), (5) time horizon, and (6) techniques and procedures used to collect and analyse the data. Figure 3.1 illustrates the layers that the researcher employed in this study.

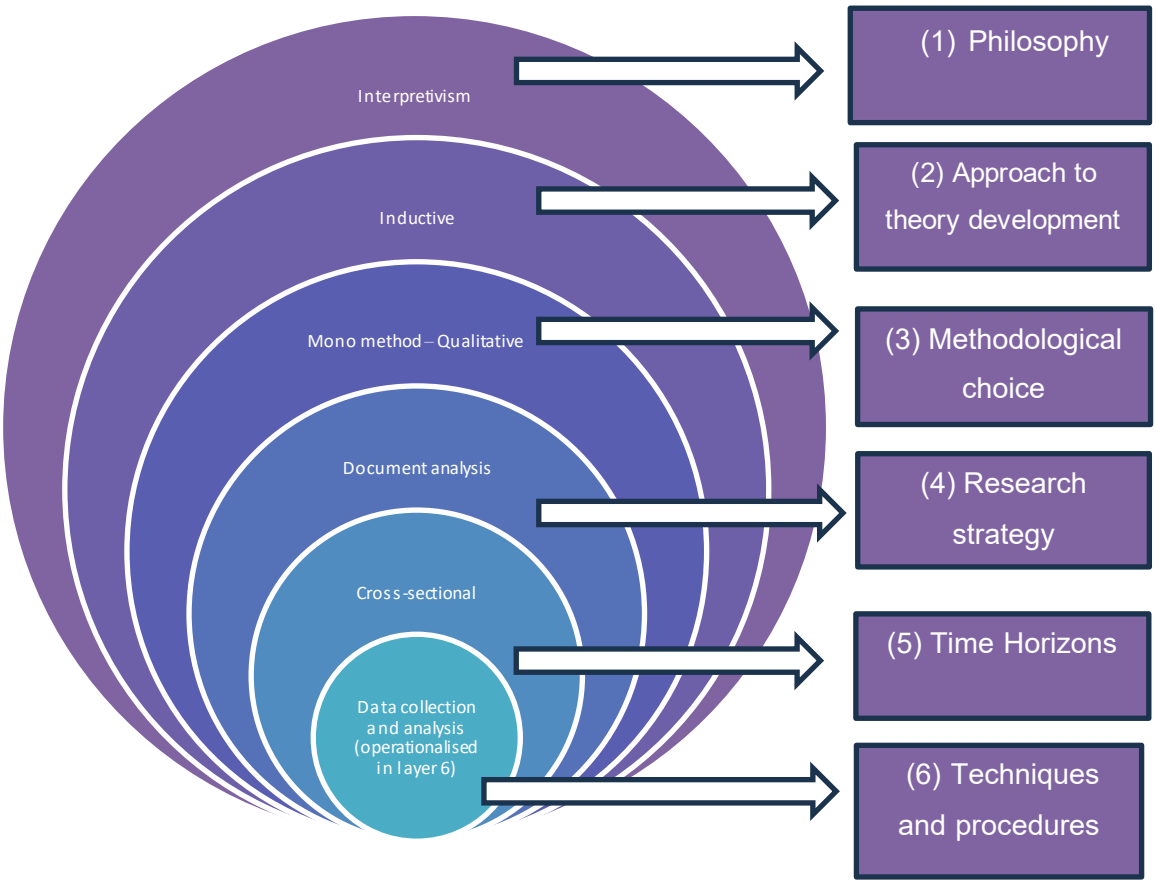


Figure 3.1: Research onion model – Source: Adapted from Melnikovas (2018:33)

3.2.1 Layer 1: Research philosophy

A research philosophy is a set of beliefs and ideas that shape how a researcher goes about creating knowledge (Saunders *et al.*, 2023:131). In other words, it dictates how researchers think about the world and how they understand how knowledge is created and why it is important in research (Sekaran & Bougie, 2016:28).

The research philosophy is the foundation of the whole research process. According to Saunders *et al.* (2023:132), it affects the choice of a study's methodology, research design, data collection, and analysis techniques. For example, a positivist philosophy might lead to structured surveys, whereas an interpretivist philosophy might prefer documentary responses and thematic analysis (Saunders *et al.*, 2023:132). Therefore, it is important to have a clear understanding of the research philosophy because it helps

the research question, methods, and analysis to fit together better, making a study more academically rigorous.

There are different types of research philosophies, such as positivism, interpretivism, realism, and pragmatism. Each paradigm represents assumptions regarding the importance of reality (ontology), the nature of knowledge (epistemology), and the significance of values in research (axiology) (Saunders *et al.*, 2023:136). These philosophical layers are discussed in table 3.1 below.

This study, which involved the analysis of documentary responses regarding digitisation strategies in the HE sector, was conducted under an interpretivist philosophy. This paradigm posits that reality is socially constructed, requiring the interpretation of the meanings that individuals or institutions attribute to their actions and communications to comprehend human experiences (Asmawi & Alam, 2024:10). The interpretivist philosophy was employed by regarding the documentary evidence not as objective data, but as socially constructed facts that represent the strategic objectives of HEIs. The researcher deemed interpretivism appropriate because of this study's emphasis on comprehending HEIs' digitisation strategies using textual analysis.

A significant advantage of this approach is that it aligns with the aim of this study. Furthermore, to enhance interpretive rigour, reflexivity was employed through ongoing self-examination and contextualisation within broader discourses (Olmos-Vega *et al.,* 2023:242). However, the interpretivist philosophy has some limitations. Since meaning making is subjective by nature, the analysis was susceptible to bias, although reflexivity was employed to lessen this risk. This limitation was recognised and mitigated by ensuring transparency in the analytical process and strongly rooting interpretations in the data. This guided the six-step thematic analysis, which involved close engagement with the texts to move beyond surface-level observations.

Table 3.1: Three philosophical layers that were applied in this study

Philosophical Layer	Definition	Application in this Study
Ontology	According to Rosida *et al.* (2023:14), ontology can be described as the fundamental	In this study, the researcher did not look for one universal truth about digitisation

	nature of existence, which encompasses all that exists.	strategies and change management. Instead, various documentary responses (strategic plans and peer-reviewed articles) were analysed to understand the phenomenon under investigation.
Epistemology	Epistemology is a philosophical discipline that examines the structure, origins, validity, dynamics, and methodologies involved in the formation of human knowledge (Rosida *et al.*, 2023: 15).	In this study, the researcher employed an interpretivist epistemology. This was done through thematic analysis to interpret meaning in ATLAS.ti version 24.
Axiology	Axiology is the study of norms or values. These values can be associated with quotidian experiences, such as good versus bad, fair versus unfair, and right against wrong. Axiology is the philosophical study of the nature of value (Rosida *et al.*, 2023: 16).	Reflexivity was applied in this study. This means that the researcher acknowledged his background as an MBA student and ensured that the interpretation was grounded in data, rather than only personal opinions.

3.2.2 Layer 2: Approach to theory development

The second layer of the model outlines the research approach for theory development. There are three types of research approach, namely, deductive, abductive, and inductive (Melnikovas, 2018:34). This study employed the inductive approach, starting with observation and subsequently moving to a description and analysis to formulate a theory (Melnikovas, 2018:34). In other words, instead of testing a set hypothesis, the research aimed to derive insights from the documentary evidence. This aligns with Braun and Clarke's (2021) six-step thematic analysis process, which is operationalised in this study's Subsection 3.2.6.2.

The inductive method was appropriate for this study, as it allowed theory to emerge naturally from the documentary evidence, instead of enforcing pre-established frameworks onto the data. The advantage of this method is that it provided flexibility in theory development, enabling the researcher to remain open to unexpected insights and patterns within the texts. The step-by-step process, which went from initial observations to open coding, pattern recognition, and theme generation, also made sure that the data was closely examined, making the findings more credible by tying them closely to the documents themselves. However, a limitation of this method is that there is a risk of incomplete conclusions. In other words, the researcher may make conclusions that are not guaranteed to be correct. This was addressed by employing a step-by-step data analysis process.

3.2.3 Layer 3: Methodological choice

This study adopted a mono-method qualitative approach, while exclusively relies on document analysis. According to Graue (2015:10), qualitative research addresses unresolved questions and underlines that qualitative research methods are appropriate for recognising and analysing diverse perspectives, the researchers' introspection on their study as a component of the knowledge production process, and a multiplicity of approaches and methods. Bowen (2009:27) defines a document analysis as a structured method for reviewing or evaluating printed and electronic documents. The reason for this choice is that document analysis lets one look more closely at institutional strategies and peer-reviewed articles, instead of making broad generalisations. The advantage of this methodological choice is that it is consistent with the interpretivist philosophy and

inductive approach, as outlined in Subsections 3.2.1 and 3.2.2. Furthermore, document analysis is less time-consuming and available in the public domain, and it is, therefore, more efficient than other research methods (Bowen, 2009:31). However, some limitations of document analysis are insufficient detail because documents are produced for some purpose other than research. This excluded previous studies located in this study's sources. In addition, bias selectivity is one of the limitations of document analysis.

In this study, the researcher utilised electronic documentary evidence available from academic articles, journals, and institutional strategic plans. The process for data collection is operationalised in layer 6, Subsection 3.2.6.2.

3.2.4 Layer 4: Research strategy

Melnikovas (2018:31) asserts that the most favourable selection of a data collection method that enables a researcher to achieve a study's objectives and effectively address that study's primary objective is realised through the adoption of a research strategy.

In this study, a documentary analysis strategy was employed to categorise the literature, utilising logical analysis, evaluation, reasoning, synthesis, and dialectical thinking (Melnikovas, 2018:33). However, several aspects should be considered before selecting a research strategy, for example, the type of data, the available tools and equipment, and the kind of required resources (Lehmann, 2010:5). Therefore, the researcher employed the documentary analysis strategy by drawing on existing records and documents as primary sources of data. The sources that are used in documentary analysis research range from manuscripts, records, electronic records, published and unpublished documents, and audio and video materials to objects and artefacts preserved by libraries, historical societies, and institutions (Kikon, 2021:13).

The data for this study was drawn from peer-reviewed journal articles and institutional strategic plans that were published between 2024 and 2025. However, some institutional strategic plans were operational before 2024, which are implemented for a five-year period. These documents were included if their implementation period also covered the aforementioned year range. The peer reviewed documents were retrieved from the following academic databases: Scopus, Springer Nature Link, Emerald Insights,

EBSCOhost and Google Scholar. The strategic plans were retrieved from the websites of different public HEIs in South Africa. This process is operationalised under layer 6, Subsection 3.2.6.2.

3.2.5 Layer 5: Time horizons

Ojebode *et al.* (2018:24) assert that any research may possess two-time horizons. The time horizons can be distinguished through the following question: Is the research a snapshot or a series of snapshots taken over time? The time horizon is the time frame that a study looks at, as well as the time when data was collected and analysed (Ojebode *et al.,* 2018:24). A cross-sectional time horizon is a single picture of a certain period, whereas a longitudinal time horizon has many pictures of that time (Ojebode *et al.,* 2018:24).

This study utilised a cross-sectional time horizon, entailing the collection and analysis of data at a single point in time or over a short, specified period. Specifically, the research focuses on the period 2024–2025, capturing a snapshot of digital transformation strategies within HEIs from a change management perspective. As mentioned earlier, institutional strategic plans that were operational before 2024 were included if their implementation period included the year range of interest.

The cross-sectional approach is suitable for this study, as it seeks to explore and interpret contemporary practices, motivators, and barriers to digital adoption in HEIs, rather than tracking changes over time. By analysing existing documents – such as peer-reviewed articles and strategic plans published within this timeframe – the study provides a contemporary view of how HEIs respond to digital transformation pressures.

3.2.6 Layer 6: Techniques and procedures

3.2.6.1 Study population and sampling

The term ‘target population’ refers to a specific group of potential participants that has been identified in advance, and that most accurately represents the characteristics of the population of interest (Casteel & Bridier, 2021:342). In this study, relevant documents relating to change management strategies from a DX perspective make the target population. This includes peer-reviewed articles (n = 9) and strategic reports (n = 9).

3.2.6.2 Data collection process

In this study the data was drawn from peer-reviewed journal articles and institutional strategic plans published between 2022 and 2025. First the peer-reviewed articles were accessed through the following academic databases:

- Scopus
- Springer Nature Link
- Emerald Insights
- EBSCOhost
- Google Scholar

The following search terms were entered into each of the databases to obtain the data: ‘change management’ or ‘organisational change’ and ‘higher education institutions’ or ‘HEIs’ or (universities) and ‘digital transformation’ or ‘technology adoption’ or ‘digital initiatives or ‘Kotter’ or ‘Kurt Lewin’ or ‘ADKAR’.

The aforementioned keywords were inserted into the first database, which is Scopus. To ensure relevance, the search was narrowed using specific bibliometric filters, including the year range (2022–2025), subject area (business management and accounting), document type (article), language (English), source type (journal articles), and publishing model (open access). The result yield from this search was n = 17. Second, Springer Nature Link was accessed, and the researcher refined the search to content type (article), date published (2022–2025), language (English), subjects (digital education and educational technology), disciplines (business and management), publishing model (open access). The research yielded n = 4 results. Then, Emerald Insight was searched using the subject (HR & Organisational behaviour) – Journal of Organizational Change Management, source type (research article), date range (2022–2025), open access. The search yielded (n = 9) results. Furthermore, EBSCOhost was accessed. The search parameters were refined to full text, scholarly peer reviewed journals, the date range from 2022-2025, and the country was limited to South Africa. The search had n = 16 results. The Google Scholar search yielded n = 676 articles, through the search refinement process.

Furthermore, institutional strategic plans of the various HEIs in South Africa were obtained from the HEIs' respective websites. The researcher was able to retrieve n = 9 strategic plans on various HEIs' websites.

According to Arksey and O'Malley (2005:25), during a review process a number of irrelevant articles could show up. To keep the analysis on track, it is important to review the articles thoroughly. The following inclusion and exclusion criteria were used to identify relevant and irrelevant documents.

Inclusion criteria

- Peer-reviewed publications dating from 2022 to 2025
- Institutional strategic plans implemented before 2022, if implementation period included the year range of interest
- Open access documents that centred on this study's research topic
- Various types of studies, such as empirical, case, qualitative, quantitative, mixed-methods, meta-synthesis, research synthesis, and systematic reviews
- Documents published in English

Exclusion criteria

- Documents not published in English
- Non-peer-reviewed sources, such as blog posts, opinion pieces, or predatory journal entries
- Peer-reviewed articles published before 2022
- Institutional strategic plans implemented before 2022, if the implementation period did not include the year range of interest
- Documents that were not related to this study's research topic
- Documents that were not open access

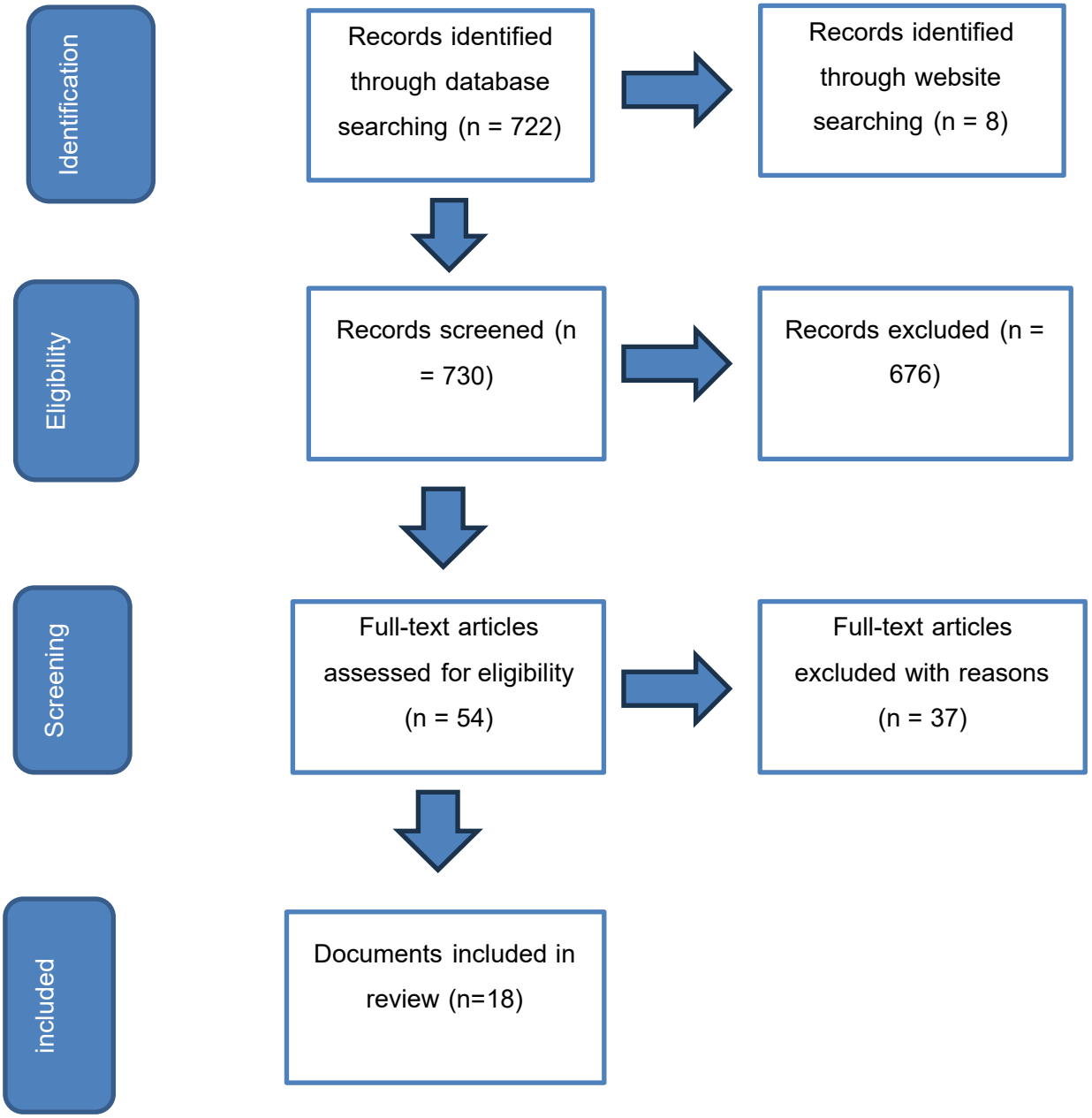


Figure 3.2: PRISMA diagram of study selection

Following this screening process, the researcher identified n = 18 significant documents and excluded n = 37 irrelevant documents that did not meet the inclusion criteria. Annexure C presents the list of the articles and the strategic plans that were obtained.

3.2.6.3 Data analysis

From a data analysis point of view, it is important to utilise a clear framework to ensure that the results are reliable. According to Patton (2014:432), qualitative data analysis is the careful and systematic process of turning raw data into useful observations that accurately present the complexities of the social situation under investigation. This ensures that valid conclusions are drawn (Saunders *et al.*, 2023:311). Different steps make up an analysis, and these steps are done in a planned and organised way to ensure that the findings are correct and trustworthy.

In this study, the researcher employed thematic analysis to examine the data, which involves identifying, analysing, and reporting patterns or themes within the data to answer this study's research questions (Braun & Clarke, 2021:60).

The identification of themes was further substantiated by the observation of their recurring occurrence, which indicates their significance (Braun & Clarke, 2021:60). The researcher utilised ATLAS.ti (version 24) to streamline the importation and analysis of the identified documents. ATLAS.ti enabled the researcher to code the data using different colours to highlight quotes in the documents that fitted into certain categories. The researcher can then make visuals of these codes and categories to find patterns or themes in the text (Kalpokaite & Radivojevic, 2019:120). Furthermore, Kalpokaite and Radivojevic (2019:120) assert that ATLAS.ti is an effective analysis tool that makes it easier for a researcher to do many things, such as organising the data and analytical processes and making a full report with pictures of the results.

3.2.6.4 Thematic analysis

The researcher followed the six-step process proposed by Braun and Clarke (2021:57) to conduct the thematic analysis. The six phases are described as follows.

Phase 1 – Familiarisation with the data: According to Braun and Clarke (2021:60), the first phase is for the researcher to familiarise themself with the data. This process involves getting into the data to know the depth and breadth of the content (Braun & Clarke, 2021:60). In this study, phase 1 was employed through reading the documents and noting

down initial ideas. Figure 3.3 illustrates the notes that were taken in ATLAS.ti version 24 as the researcher familiarised himself with the data. In the first note taking example below, the researcher identified the proactive management of institutional culture as an important aspect in change management. In the second note taking example below, the researcher observed that the core logic of digitalisation functioning as a facilitator for strategic objectives such as data-driven management.

This step assisted the researcher with finding information that might be useful for the research questions. The researcher noted their thoughts and impressions in research notes, which served as a record of openness and a basis for later coding choices. All the documents (annexure C) were given the same amount of attention to ensure that no parts were missed or given more weight than others. This stage of getting to know the documents aided the groundwork for making the first codes in the next stage.

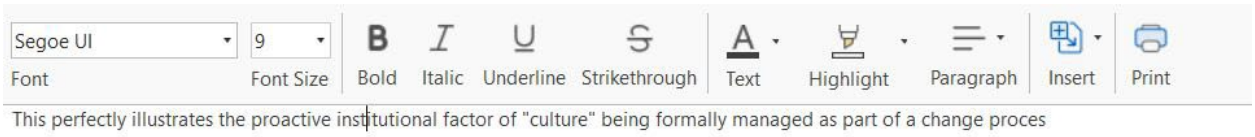


Figure 3.3: Example of preliminary notes taken during the first step

Phase 2 – Generating initial codes: Braun and Clarke (2021:62) stated that the second phase starts when one reads the data and gets to know it, and when one has made a first list of ideas about what is in the data and what is interesting about it. This phase then involves developing codes from the data (Braun & Clarke, 2021:62). In this stage of the analysis, the researcher systematically assigned codes to all data items that were pertinent to the research questions. The documents were coded several times, to make changes and improvements to the codes as the researcher learned more about them. The researcher made use of ATLAS.ti version 24 to keep track of how codes changed

from one iteration to the next. This helped the researcher to keep track of changes and be open about the analytical process. This recursive method made sure that many different possible meanings were looked at before choosing the coding framework that made the most sense. Figure 3.4 illustrates an example of one of the documents that were coded.

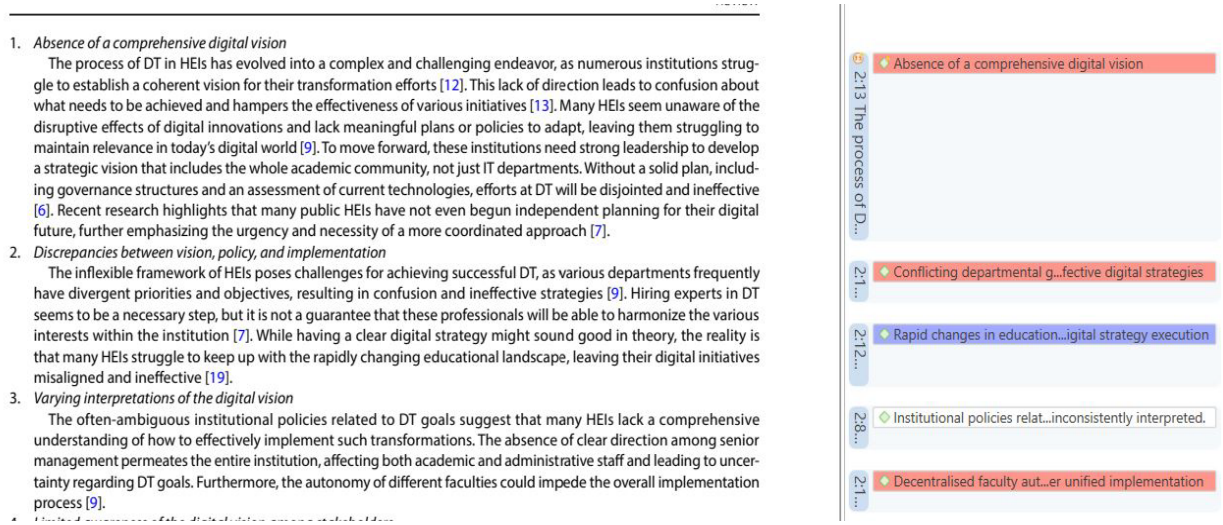


Figure 3.4: ATLAS.ti extract of the coding process

Phase 3 – Searching for themes: According to Braun and Clarke (2021:63), the third phase starts once one has coded and put all the data together, and when one has a long list of the different codes that one found in the data set. This phase, which shifts the analysis to a higher level of themes instead of codes, involves putting the different codes into possible themes and distributing all the relevant coded data extracts into the themes that have been found (Braun & Clarke, 2021:63). In this phase, the researcher collated the codes into potential themes. The researcher started putting codes into groups that could be used as initial candidate themes. This meant looking at how different codes could be put together based on their shared meanings and putting codes that were too similar into larger groups. In certain instances, individual codes were elevated to sub-themes or themes, indicating a comprehensive narrative within the documents. At this point, the researcher was actively figuring out how codes were related to each other, instead of assuming that themes were already there in the data. The emphasis was on seeing patterns that suggested significant insights that were applicable to the research

questions, irrespective of the quantity of codes associated with each theme. The researcher was also aware of codes that did not fit anywhere else, and that these codes might be thrown out or turned into their own themes later.

This phase produced a collection of preliminary candidate themes, depicted in a thematic map. These themes created a working framework that indicated coherence and diversity in the data set. They were also open to being improved in later stages of the analysis. Figure 3.5 below shows how the codes were labelled using different colours.

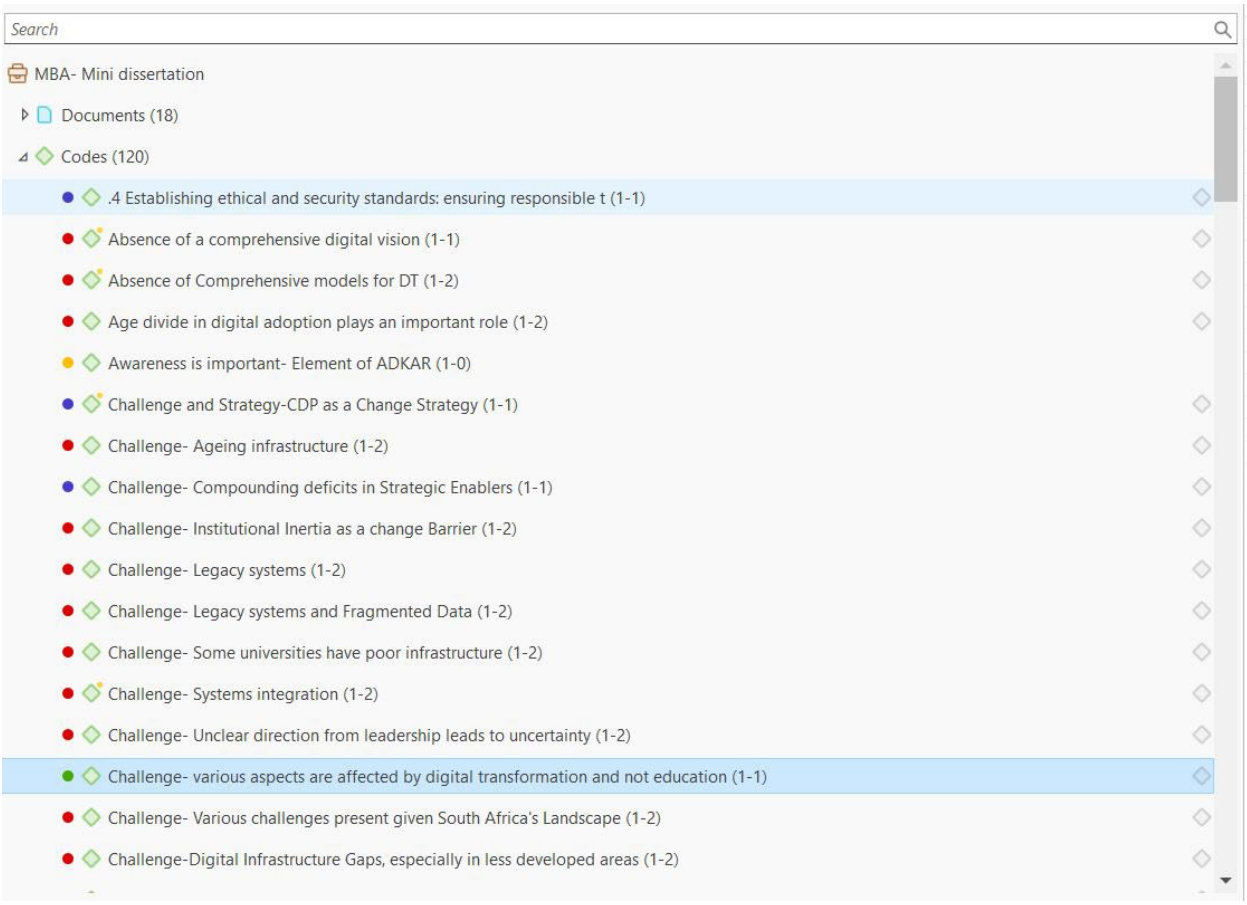


Figure 3.5: ATLAS.ti extract of the colour coding process

Phase 4 – Reviewing and refining themes: Braun and Clarke (2021:91) highlighted that phase 4 starts when one has come up with a list of possible themes, and involves enhancing the themes. In this phase, the researcher then reviewed the themes and did an iterative review of the possible themes pertaining to the analysed data items and the entire data set. There were two levels of review in this process. First, the researcher looked at the connections between the codes and data extracts that helped shape each

theme at the first level to make sure that they made sense together. If codes or extracts did not fit together in a clear way, they were either moved to a different place or taken out. Second, the researcher looked at the candidate themes in relation to the entire data set to see if they gave useful and different interpretations of the documents in relation to the research questions. During this process, the researcher employed Braun and Clarke's (2021:91) guiding questions to assist in deciding whether more than one code represented a theme, whether it presented useful information, what its boundaries were, and whether it was backed up by enough and clear data. Furthermore, the researcher also used Patton's (2014:520) two criteria of internal homogeneity and external heterogeneity to ensure that each theme was consistent with itself and different from the others. Reflexivity was essential at this stage, as the researcher recognised their interpretative role in determining the most suitable codes and extracts to elucidate each theme.

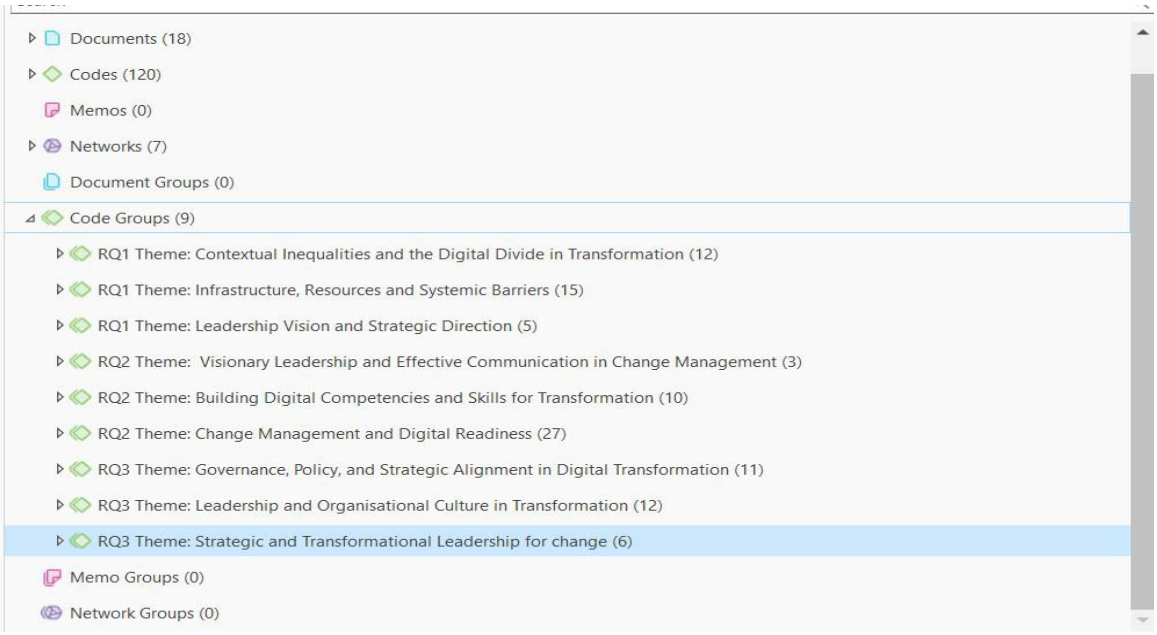


Figure 3.6: ATLAS.ti extract of the preliminary code groups

Phase 5 – Defining and naming themes: This phase entails the ongoing analysis to refine the specifics of each theme and generating clear definitions and names for each theme. In this phase, the researcher worked on defining and improving the thematic structure. Every theme and sub-theme was expressed in connection with the raw data and the

research questions, considering Patton's (2014:520) dual requirements for internal integration and uniqueness. Defining the themes required deep interpretative engagement with the documents, acknowledging the researcher's role in actively constructing meaning, rather than only categorising the data. Data extracts are employed in the findings section (Chapter 4) that clearly demonstrate each theme and are linked to relevant literature as they are reported. This ensured that the story was still part of the academic field and demonstrated how intricate the evidence was. Figure 3.7 below shows how the interconnectivity development between the themes and codes were created using ATLAS.ti. Furthermore, a table of the raw data containing the quotes and codes per document (annexure D), the Sankey diagram (annexure E), word cloud (annexure F) and a tree map (annexure G) of the data were included.

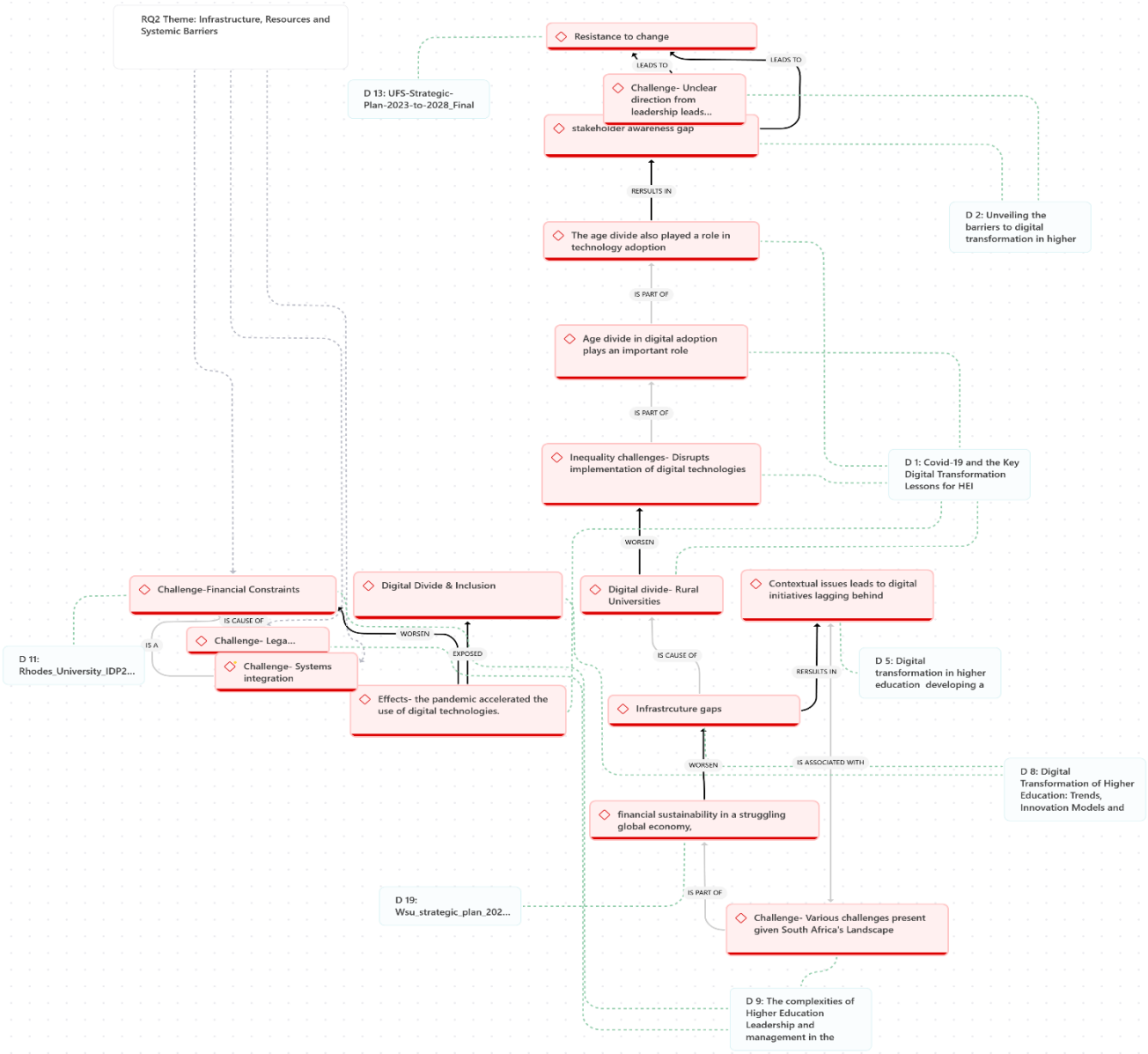


Figure 3.7: ATLAS.ti theme Interconnectivity development

Phase 6 – Writing the report: The last phase of the analysis was the write-up process in accordance with this study's research questions. Based on Braun and Clarke's thematic analysis, the write-up was not seen as a separate step, but as a part of the ongoing process connected throughout the analytical process. As codes and themes evolved, so did the narrative. The order of the themes was carefully determined to construct a cohesive narrative that dealt with the research questions while simultaneously making sense. In line with best practices in thematic analysis, the data were synthesised and contextualised within the findings chapter (Chapter 4), instead of being allocated to a stand-alone discussion chapter. This approach ensured that the analysis was directly integrated into the presentation of themes. Reflexivity was integral to this process, as it assisted in recognising the researcher's analytical role in the formulation and illustration of themes.

3.3 Trustworthiness

Qualitative researchers are required to accurately document and disclose their data analysis methodologies, thereby enabling readers to assess the credibility of the process and the reliability of the data (Fouché *et al.,* 2021:392). The authors further mentioned that qualitative studies should be assessed on the following four criteria to ensure that they are reliable: credibility, transferability, dependability, and confirmability.

3.3.1 Credibility

The researcher must ensure that reliable and rich data is gathered in order to conduct an in-depth analysis, which will increase credibility (Fouché *et al.,* 2021:394). In this study, the researcher made sure that the translations and representations of the reviewed literature align with the study's objectives. In addition, Fouché *et al.* (2021:394) emphasised that, with reference to the ethical code, it is the researchers' duty to guarantee that the research study would be carried out according to the principles of good practice.

In this study, credibility was strengthened by establishing that the data sources were valid, appropriate, and in accordance with the research aim. The researcher regularly consulted with the study supervisor, who offered guidance and supervision throughout the research process. The supervision helped verify the meanings and lessen any bias that might have been present. Also, data triangulation was used by looking at more than one documentary source, which made the results more accurate and made sure that the conclusions were not based on just one perspective. The study proved that results could be trusted and believed by being open about the research methods and following the guidelines for documentary analysis.

3.3.2 Transferability

According to Fouché *et al.* (2021:393), transferability is the degree to which the data's conclusions can be applied to different research contexts. The findings of this study can be widely applied to management practices, particularly in HEIs, because of their relevance.

By clearly defining the study's criteria and methodologies, the researcher facilitated readers assessment of the finding's applicability to other HEIs, especially those in developing economies encountering similar challenges. Even though the study was specific to a certain situation, the thorough documentation of the procedures and contextual factors make it possible to make informed decisions about how the results might work in similar situations.

3.3.3 Dependability

Fouché *et al.* (2021:394) state that dependability refers to how consistent the research results will be throughout time. The study's dependability is assessed by analysing evidence of the research process contained in its documentation (Fouché *et al.,* 2021:394). The researcher was directed by their supervisor, who monitored and documented all procedures and processes that culminated in the study's conclusion. This ensured that the translation of the data was correct and that the interpretation of data into findings was accurate and consistent. The use of systematic coding and following established rules for documentary analysis also showed that the research process was

consistent and could be repeated. These steps enable another researcher who follows the same steps to probably come to the same conclusions, which made the study more reliable.

3.3.4 Confirmability

Confirmability denotes objectivity, namely, the capacity for agreement among two or more independent individuals regarding the data's veracity, relevance, or significance (Fouché *et al.,* 2021:394). This means that other researchers must be able to verify that they would arrive at the same conclusions or results as a study if they employed the same steps and methodology (Fouché *et al.,* 2021:394).

In this study, confirmability is provided by keeping a transparent audit trail of the research process, encompassing detailed documentation of sources of data, coding procedures, and analytical decisions. Working with the study supervisor during the research gave an external person a chance to check the interpretations, which made them more objective. Additionally, triangulation from different documentary sources lowered the chance of bias and made the results more believable.

3.4 Ethical Considerations

Ethical considerations in research are characterised as a set of principles that guide research design and methodologies (Bhandari, 2021:2). They dictate the permissible and impermissible actions of researchers in a study (Traianou & Hammersley, 2012:34). Ethics represents the moral judgement between what is right and what is wrong, although what is unethical is not invariably illegal. These ethical standards, however, can vary across different societies (Bhattacherjee, 2012:137). A qualitative research methodology, which was employed in this study, entails risks such as the Hawthorne effect, placebo effect, recall bias, observer bias, and self-selection bias (McCombes & George, 2022). Since this study did not involve interviews or human participants, the ethical risks to be considered are of a limited nature The following ethical considerations were integrated into the research design:

- Approval from relevant scientific and ethical clearance committees of the Faculty of Economic and Management Sciences of the North-West University (NWU-00694-25-

A4) to ensure the pertinence of the research question and the applicability of the research design, as well as the consideration of potential ethical issues

- Anonymity and confidentiality, where applicable
- Adherence to the Protection of Personal Information Act, 4 of 2013 (POPIA)
- Upholding academic integrity
- Addressing research and publication biases

Maintaining academic integrity is imperative in this study. Therefore, measures were implemented to ensure the appropriate academic referencing of academically acceptable sources, the avoidance of copyright infringements, and the receipt of timely and consistent guidance from the study leader to identify any errors in this context. The researcher received oversight and revision from the study leader to ensure factual accuracy and avoid the risk of personal biases. Finally, the research will undergo Turnitin verification to ensure academic integrity and mitigate the risk of plagiarism, after which it will be evaluated by external examiners in accordance with the relevant prescripts of the North-West University.

3.5 Conclusion

The research methodology outlined in this chapter establishes a rigorous framework for exploring digitisation strategies from the lens of change management in HEIs. The study employs an interpretivist philosophy and an inductive methodology, emphasising the subjective meanings and strategic objectives that are inherent in institutional documents. The research onion model ensured that every technical step, from choosing documents to the six-step thematic analysis in ATLAS.ti, was logically connected to this study's objectives.

3.6 Chapter Summary

This chapter details the research methodology that was used in the present study. It explains the philosophical stance (interpretivism), the inductive reasoning approach, and the qualitative design that was adopted. The research onion model was used to structure decisions on strategy, time horizon, and techniques. Data was collected through documentary analysis research and analysed using thematic analysis on ATLAS.ti. The chapter also addresses trustworthiness criteria and ethical principles to maintain integrity.

By presenting these elements, the chapter established the foundation for a credible and systematic analysis of digitisation strategies in HE.

CHAPTER 4: PRESENTATION OF FINDINGS

4.1 Introduction

This chapter presents the findings of the present study, which sought to explore what is known from documentary responses about the digitisation strategies, from a change management perspective, that were employed by HEIs in their digital transformation efforts. By examining the challenges, strategies, and institutional factors that were involved, this chapter provides a comprehensive view of how HEIs navigate the shift towards a digitally enabled environment.

The findings are structured according to the following research questions that guided this study:

Primary research question:

1. What is known from documentary responses about the digitisation strategies from a change management perspective employed by HEIs in their digital transformation efforts.

Secondary research questions:

1. What challenges and limitations are documented in HEIs' digitisation strategies with respect to change management during digital transformation?
2. Which change management strategies have been associated with successful digital transformation initiatives in HEIs?
3. How do institutional factors, including leadership, culture, and resources, influence the selection and efficacy of change management models in HEIs?

The data indicates that DX is not only a technical upgrade, but also a lengthy process that requires major cultural and workforce shifts. Some institutions use intelligent governance to make changes, but others are still struggling because of legacy systems and fragmented data.

The following sections go into more detail about these findings, using illustrative quotes from the data.

4.2 Overview of the Thematic Analysis Process

The thematic analysis followed the procedures that are outlined in this study's Subsection 3.2.6.3.

- *Phase 1: Familiarisation with the data*

This process involved reading and re-reading the documents that were obtained from database searching and institutional strategic plans. During this phase, the researcher made initial notes about the recurring ideas that appeared across the documents.

- *Phase 2: Generating initial codes*

The second phase involved highlighting a meaningful segment of text that included phrases and sentences. The codes capture, for example, age divide, which plays an important role in digital adoption. Some universities have poor infrastructure, legacy systems, and fragmented data.

- *Phase 3: Searching for themes*

In phase 3, the related codes were grouped together into broader categories. The clusters that emerged from the data included the following: demographic and social factors, infrastructure challenges, institutional and organisational barriers, strategic pacing, and phased institutional adaptation.

- *Phase 4: Reviewing and refining themes*

The identified themes were compared to the coded data and the research questions. Some themes were combined, given new names, or split into sub-themes to make them more coherent.

- *Phase 5: Defining and naming themes*

During this phase, seven overarching themes were identified, with three main themes having sub-themes. This is demonstrated in Section 4.3.

- *Phase 6: Writing the report*

The last step was to write up the analysis, using quotes from the documents to help explain it. The writing process also included connecting the different theories to make the interpretation stronger.

4.3 Overview of the Themes

According to Usmonova (2022:116), themes in research are meaningful patterns or concepts that recur during data analysis. In other words, they summarise the main ideas or topics that best capture the findings of the research. Themes in research help to provide a structured and organised system of understanding and analysing data to make sense of information for the researcher and the reader by breaking down complex information into smaller, more absorbable pieces. In this study, themes were important in answering the research questions, supporting arguments, and telling the story to enhance clarity and impact. The key insights from the analysis and the summary of the most important findings are expressed by representing the themes in Table 4.1 below.

Table 4.1: Presentation of the themes identified through the thematic analysis process in this study

Theme	Sub-Themes	Codes
RQ1 Theme 1: Contextual Inequalities and the Digital Divide in Transformation	Demographic and Social Factors	• Age divide, which played a role in technology adoption • Age divide in digital adoption, which played an important role • Digital divide – between urban and rural universities • Digital divide and inclusion • Contextual issues, which led to digital initiatives lagging

		• Stakeholder awareness gap • Financial sustainability in a struggling global economy • Challenge – financial constraints • Inequality challenges – that disrupt implementation of digital technologies • Digital divide – digital gaps that were exposed • Digital transformation – a lengthy process that occurs in various stages • Resistance to change
RQ1 Theme 2: Infrastructure, Resources, and Systemic Barriers	Infrastructure and Legacy Systems Integration Issues	• Challenge – ageing infrastructure • Challenge – some universities having poor infrastructure • Challenge – digital infrastructure gaps, especially in less developed areas • Upgrading infrastructure: building a digital foundation • Infrastructure gaps • Challenge – legacy systems

		• Challenge – legacy systems and fragmented data • Challenge – systems integration
	Institutional and Organisational Barriers	• Challenge – institutional inertia as a change barrier • Conflicting departmental goals causing fragmentation and ineffective digital strategies • Decentralised faculty autonomy, which can hinder unified implementation • Siloed operations and resource constraints as barriers • Weak internal policies and governance structures • Lack of holistic assessment tools (e.g., DX maturity models)
RQ1 Theme 3: Leadership Vision and Strategic Direction		• Absence of a comprehensive digital vision • Absence of comprehensive models for digital transformation.

		• Challenge – Unclear direction from leadership that results in uncertainty • Challenge – Leadership ineffectiveness • Prioritisation of quick fixes over sustainable solutions
RQ2 Theme 4: Change Management and Digital Readiness	Consultative Approach to Managing Change	• Visionary leadership and effective communication – essential to underscore the importance of digital transformation and its benefits • Change management that should involve a participatory approach • Comprehensive change management beyond only technology integration • Consultative approach involving various stakeholders • Participatory approach to strategy development • Leaders who need to provide support to staff during change • Strategy - effective Communication • Strategy – Open and consultative approach to CM.

	Strategic Pacing and Phased Institutional Adaptation	• Establishing ethical and security standards: ensuring responsible transformation • Key performance indicators for measuring change management effectiveness • Strategy – comprehensive readiness framework • Strategy – holistic pillars of successful digital transformation • Strategy – dimensions of digital transformation readiness • Strategy – leadership's strategic approach to change management. • Ongoing journey and phased approach that indicate different institutional readiness and adaptation stages • Prioritisation approach to success • Rapid changes in education landscape outpace institutional digital strategy execution

		• Strategy – digitalisation as an enabler for strategic goals
	Pedagogical Integration and Data-Driven Educational Continuity	• Classrooms' digital extension • Digital Teacher Action Plan and National Smart Education Platform • Digitisation of academic offerings • Online learning as a mitigation strategy •Digitally enabled environment • Digital tools for making data-driven decisions • DT to improve student learning and ensure business continuity • DT to support data-driven decision-making
	Building Digital Competencies and Skills for Transformation	• Improving digital literacy and skills: promoting faculty and students • Offering digital skills training • Strategy – continuous professional development • Strategy – digital competency

		• Strategy – investing in digital skills and competencies • Strategy – talent training and employee retention • Strategy – upskilling, which is important • Strategy – digital skills and competencies • Strategy – training and development of skills for the 4IR • Strategy – upskilling as part of the future
RQ3 Theme 5: Leadership and Organisational Culture in Transformation		• Lack of support from leaders to staff in the change management process in selected public universities • Institutional – foundational role of leadership in change management. • Institutional Factor – supportive culture and leadership as transformation enablers • High-performance culture • Lack of a comprehensive, coordinated approach to digital transformation by HEIs in South Africa • Ethical leadership • Digital transformation and innovation – embedded as one of five cross-cutting themes

		• Culture of stakeholder engagement • Cultural and workforce shifts that highlights challenges in adapting to new operational and educational paradigms • Challenge – resistance to change, which could lead to other negative factors • Challenge – leadership ineffectiveness results in change resistance • Challenge – lack of integration and a coordinated strategy
RQ3 Theme 6: Governance, Policy, and Strategic Alignment in Digital Transformation		• Weak internal policies and governance structures • Values-based framework and systems thinking to drive organisational change • Strategy – embedded cultural change • Intelligent governance and adaptive management • Integrated transformation plan that serves as a vehicle for institutional change • Institutional policies related to DT goals that are often unclear and inconsistently interpreted • Governance modernisation: advancing decision-making with data

		• Digitisation that is seen as a tool to serve the mission • Digital readiness, which refers to the degree to which an organisation employs digital tools. • Challenge – various aspects being affected by digital transformation and not education
RQ3 Theme 7: Strategic and Transformational Leadership for Change		• Strategy - Leadership and team collaboration • Strategy – proactive strategic change leadership •Strategy – collaborative approach. • Strategy - encouraging employees to promote digital maturity vision • Strategy – leadership plays a crucial role in creating the ideal cultural climate • Transformational leadership is required.

4.4 Theme 1: Contextual Inequalities and the Digital Divide in Transformation

This theme discusses the findings from the document analysis pertaining to the first secondary research question. The analysis reveals that there are structural and social problems that are making it difficult for HEIs to implement digital strategies, especially from a change management point of view.

4.4.1 Sub-theme 1: Demographic and social factors

The documentary evidence indicates that digital transformation is a lengthy process that occurs at various stages. However, this process is often delayed by embedded contextual demographic and social challenges, rather than only technical ones.

The challenges that have been recorded are a stakeholder awareness gap and financial constraints that are worsened by economic growth challenges. The documentary evidence indicates that financial sustainability is a challenge, especially for universities positioned in underdeveloped areas. As a result, this exacerbates the digital divide amongst staff and students making it difficult to use technology. These findings align with the work of Mateko *et al.* (2025:12), which found that financial sustainability challenges and inconsistent stakeholder awareness lead to shortcomings in technology adoption, especially in HEIs situated in less developed areas. These challenges are not only outside HEIs, but also part of its culture. When there are not enough resources, resistance is often a reasonable thing to do.

The following quote illustrates the challenges faced by HEIs, especially from a financial sustainability perspective.

"Like all the other South African universities in the higher education sector, WSU has to manage the challenges relating to digital transformation required in the Fourth Industrial Revolution(4IR), financial sustainability in a struggling global economy, and the crisis into which COVID-19 has thrown companies world-wide." (Walter Sisulu University (WSU), Strategic Plan, 2020–2030:35)

Another important finding is that the age divide also has a vast impact on how HEIs employ technology. This means that the current cohort of students are better positioned to use digital tools, compared to older groups of employees who need to adapt, but often resist digital adoption. However, Sithole and Mbukanma (2024:186) argue that age is not the sole factor contributing to resistance. The authors mentioned that institutional support and infrastructure are also contributing factors. In other words, resistance to change should not be looked from a one-sided approach, but rather a holistic one.

The following quote illustrates the link between the age divide among students and university employees.

"Again, one aspect that should be considered for the successful use of digital technologies in higher education is the age divide between students who are deemed native to these tools and university faculties and departments that must adapt and learn how to utilize them." (Mhlanga et al., 2022:11)

The evidence indicates that digital transformation in HEIs is not limited to an easy technical enhancement, but is a broad, phased process influenced by contextual factors. These contextual factors that slow down progress include demographic differences, financial sustainability challenges, and gaps in stakeholder awareness. These issues have a strong foundation in the culture of the institution and the larger social and economic conditions.

Therefore, resistance to change is not only a matter of being unwilling to cooperate or being too old to do so. It is often a reasonable response to structural problems, such as not having enough resources, not getting enough support from institutions, and having infrastructure that is not always up to standard. The digital divide between staff and students reflects systemic problems, which make it hard for everyone to use technology consistently.

4.5 Theme 2: Infrastructure and System Barriers

This theme discusses the findings from the document analysis pertaining to the first secondary research question. The analysis indicates that HEIs experience infrastructure and legacy system integration challenges, as well as institutional and organisational barriers. These findings are discussed in the following subsections.

4.5.1 Sub-theme 1: Infrastructure and legacy system integration challenges

Building on Theme 2, the documentary evidence demonstrates that one of the main reasons why digital transformation in HEIs is hampered is the ageing and poor infrastructure. These challenges make it harder for staff to use digital technologies, thereby highlighting a disconnect between the HEIs' visions and operational realities. Significantly, the shift is further complicated by legacy systems and fragmented data, which create operational silos that do not work well with contemporary technologies. These findings are consistent with the arguments presented by Warner and Wäger

(2019:332) and Fitzgerald *et al.* (2013:9) in this study's Subsection 2.8.4. Warner and Wäger (2019:332) emphasise that legacy systems are considered to be a significant obstacle associated with digital transformation. The reason for this is that outdated technological infrastructure delays the integration of these systems with modern technologies, thus requiring considerable financial and technical resources (Warner & Wäger, 2019:332). Similarly, Fitzgerald *et al.* (2013:9) found that 45% of organisations experienced challenges in their digital transformation initiatives due to the difficulty of integrating legacy systems with modern technologies. This is important to understand because Alfadhel *et al.* (2025:12) assert that stable infrastructure functions as an essential enabler for efficient strategic decision-making. This implies that to fully embrace digital transformation, one needs to have a clear vision and invest in strong, modern infrastructure.

The following illustrative quotes echo these findings.

"Furthermore, many rural institutions may struggle with outdated or inadequate hardware, such as computers and servers, which can hinder the implementation of modern digital tools and platforms. This can affect both teaching and learning processes." (Mabasa & Maluka, 2024:216)

"This article argues that another complexity that is presented by the digital era is institutional financial constraints." (Mabasa & Maluka, 2024:216)

"While the University of Limpopo has made significant strides in integrating technology into its operations, there remain areas where legacy systems, fragmented data, and manual processes hinder efficiency and optimal outcomes." (University of Limpopo, Strategic Plan, 2024–2028:7)

From a change management point of view, the challenge of systems integration triggers user fatigue and resistance. The reasoning behind this is that when there is an unstable digital foundation, the psychological contract between an institution and its employees is strained. As Mabotha and Ngcamu (2025:14) suggest, digital transformation is less about the technology itself and more about institutional agility. This highlights that if infrastructure gaps are not closed, any change management strategy will likely result in

a pieced together implementation. As a result, this creates a divided workforce where some departments thrive, while others are left behind, ultimately stalling the collective institutional move towards a digital-first culture.

4.5.2 Sub-theme 2: Institutional and organisational barriers

The findings indicate that long-standing structural and cultural limitations frequently hinder digital transformation in HEIs. A significant issue identified is institutional inertia, which makes it hard to change operations, because traditional academic processes are too slow to keep up with the digital evolution. The following illustrative quote echoes this finding.

"Higher education institutions face significant challenges in implementing digital transformation, including reliance on conventional teaching methods, limited governance adaptability, bureaucratic inertia, and academic community resistance to change." (Adiwijaya *et al.*, 2025:1)

Another challenge that was identified and illustrated in the following quote is the weak internal policies and governance structures that leave digital initiatives without the necessary support they need to succeed.

"Internal policies and governance issues make this situation worse, as DT is complicated and affects all aspects of higher education." (Singun, 2025:15)

Furthermore, the findings highlight a significant lack of coordination across the institutions, where conflicting departmental goals cause fragmentation, which results in ineffective and often redundant digital strategies. This fragmentation is exacerbated by decentralised faculty autonomy, which, although academically valuable, can hinder unified implementation of technology. According to Carvalho *et al.* (2020:445), this lack of alignment indicates that HEIs have a hard time measuring progress accurately, because they do not have enough holistic assessment tools, such as maturity models. Conversely, Valdivia-Salazar *et al.* (2025:15) contend that although autonomy presents a challenge, it is the fragmented operations and resource limitations that genuinely serve as destruction for sustainable transformation.

From a change management point of view, these institutional barriers make it hard to make changes, and they lead to strategic challenges. This means that digital transformation turns into an ongoing set of individual endeavours, instead of being a collective journey. When there is a series of separate experiments instead of a collective effort, there is no clear leadership or coordinated policies. The results indicate that digital strategies will remain shallow and not address the core of the institutional mission, until HEIs cease to operate in isolation.

4.6 Theme 3: Leadership and Strategic Vision Deficits

This theme discusses the findings from the document analysis pertaining to the first secondary research question.

The documentary evidence indicates that HEIs regard digital transformation as a strategic priority. However, the analysis points to certain deficiencies in the vision and leadership guidance. Some institutional strategies mention long-term change, but some strategic documents often do not clearly state a single, complete digital vision. This leads to staff working on different things simultaneously. This pattern corresponds with Singun's (2025: 9) observation that HEIs face challenges due to inconsistent strategies and reference models, wherein digital transformation is acknowledged as significant but lacks a unified institutional plan of action. The documentary evidence indicates that the lack of a clear model makes things even harder for staff, who are unsure of what to do. Without clear guidance from leadership about what is changing, why and how different departments see priorities, things get even more confusing. Matsunaga's (2024:18) examination of organisational uncertainty, along with digitalisation, reveals this dynamic. When the vision is ambiguous, employees encounter increased uncertainty, which undermines their connection to the change initiative. The following illustrative quotes echo these significant findings.

"The absence of clear direction among senior management permeates the entire institution, affecting both academic and administrative staff and leading to uncertainty regarding DT goals." (Singun, 2025:14)

"Many HEIs focus on immediate problems instead of addressing important long-term goals, which results in avoiding the tough challenges that require time and hard work." (Singun, 2025:15)

The analysis reveals persistent occurrences of ineffective leadership, wherein leaders prioritise current digital demands over the development of long-term digital strategies. According to Newman *et al.* (2025:6), the same problem is happening at United Kingdom HEIs. The author states that the institutions are quickly adopting digital technology without a clear plan, and that they are doing so because they need to solve immediate issues, and not because it fits with their long-term goals. This goes directly into the final code of quick fixes instead of long-term solutions. Fernández *et al.* (2023: 12370) also argue that most universities do digital projects that are not part of a larger plan on their own. This indicates that these HEIs are not very digitally mature.

The analysed documents insufficiently illustrate Kotter's initial steps: creating a sense of urgency, building a guiding coalition, and forming a strategic vision and initiatives. Kang *et al.* (2020:3) contend that in the HEI context, leaders must repeatedly reassess these initial steps, as one-dimensional vision statements fail to apply in decentralised organisational cultures. The analysed documents exhibit a similar tension where strategic plans state digital transformation, yet the iterative process of refining the vision with stakeholders is absent. From an ADKAR point of view, not having a clear direction stops the growth of awareness and desire, leading to adoption gaps. This explains why leaders are inconsistent and why they rely on short-term fixes. The outcome is a system in which vision and leadership fail to provide a sufficient structure to transition the institution from vision to unified action.

4.7 Theme 4: Change Management and Digital Readiness

This theme discusses the findings from the document analysis pertaining to the second secondary research question: Which change management strategies have been associated with successful digital transformation initiatives in HEIs? This section has four sub-themes, which indicate that (1) consultative approach to managing changes (2) strategic pacing and phased implementation, and (3) pedagogical integration and data-driven educational continuity, and that (4) building digital competence forms part of the

change management strategies employed by HEIs. These themes are discussed in detailed in the following subsections.

4.7.1 Sub-theme 1: Consultative approach for managing change

The documentary analysis indicates clear emphasis on the significance of effective communication and the advocacy for a participatory approach in change management. These two parts are interrelated because they illustrate that communication needs to change into an engaged, two-way process of sharing ideas and collaborating. The analysis reveals that to enable this, visionary leadership is required, and transparent communication needs to take place. Newman *et al.* (2025:11) stresses the importance of transparent communication and deliberate engagement processes in digital transformation in helping employees to understand the purpose and effects of change. This focus is like the coded categories, which include effective communication, participatory strategy development, and a broader consultative approach. The following quote illustrates the importance of a participatory approach as part of the change management strategy.

"Similarly, some other scholars noticed that approaching change in an open and consultative manner assists in more effective implementation." (Jinga et al., 2024:12)

A common idea in all the sources is that change management needs to go beyond only integrating new technology. Singun's systematic review makes this clear: HEIs that do not pay attention to stakeholder awareness and involvement find it difficult to stabilise digital transformation, because the change becomes a technical project instead of an organisational one (Singun, 2025: 8). The data follows the same logic where consultation is not only for show but is part of the structure. Although digital transformation is presented as participatory, staff and students feel more in control of the direction, and uncertainty decreases. Matsunaga's research on uncertainty related to digitalisation supports this notion, that clear leadership and open communication directly mitigate the confusion that employees experience during extensive digital transitions (Matsunaga, 2024:18).

The documentary analysis also indicates that leaders need to help their staff through changes, but the kind of help staff need differs. Some strategies talk about ways to

improve one's skills as a professional, whereas others focus on working together to design. This is very similar to the ADKAR model at the process level, especially the knowledge and ability stages, where leaders must ensure that staff know how to do new things. Newman *et al.* (2025:14) demonstrate that universities that build capacity and make decisions with input from staff are more digitally ready.

In general, the results indicate that consultative, participatory change management is not only a good idea, but also a necessity for long-lasting change. Strategies that emphasise open communication, co-design, and multi-stakeholder involvement are consistent with change management theory and exhibit enhanced potential for long-term stability. Those that do not see transformation as a technical upgrade risk shallow engagement and disconnected outcomes.

4.7.2 Sub-theme 2: Strategic pacing and phased institutional adaptation

The document analysis indicates that digital transformation is perceived not as an outcome but as a gradual process that comprises various stages. This process depends strongly on the different stages of institutional preparedness and integration. In other words, a single approach will not work for all South African HEIs given the variety of stages. This finding is supported by the illustrated quote that follows. The quote emphasises that since digital transformation is a continuous process, a single iniative is not an option.

"Unlike a single initiative, DT is an ongoing journey that drives increasingly significant organizational changes over time." (Singun, 2025:2)

A significant finding is the conflict between internal planning and external factors. The documentary evidence highlights that institutions' digital strategies cannot keep up with the rapid changes in digital technologies, meaning that there is a gap between creating policies and implementing them. This is where change management initiatives often go wrong. According to Olaitan *et al.* (2024:170), the speed of technological disruption in the 4IR context requires agility that most bureaucratic HEI structures do not provide yet.

To mitigate the risk of getting left behind, the documentary evidence indicates that a prioritisation strategy for success must be implemented. Given that resources are limited, successful transformation means figuring out which strategic goals will have the largest effect. This goes along with Kotter's (2012) statement on the importance of getting short-term wins to build momentum. However, if there are no clear elements that define readiness, prioritisation becomes unstructured. Furthermore, Twabu (2025:8) contends that prioritisation in HEIs must be evidence-based, employing data-driven governance to ascertain which departments are prepared for the phased journey and which necessitate additional foundational support. In the end, the success of these strategies depends on how well the workers adapt to them.

4.7.3 Sub-theme 3: Pedagogical integration and data-driven educational continuity

The documentary analysis reveals that HEIs have transitioned from reactive technology adoption to a strategic framework for resilience and development. This change is all about using digital technology to assist with teaching and learning, and for business continuity. This strategy renders online learning an instrument to deal with challenges, which shifts the focus of the institution from a short-term response to a long-term, digitally enabled environment. The Rhodes University Strategic Plan (2023–2028:13) emphasises: *"The recent experience with the COVID-19 pandemic has underscored the importance and value of harnessing digital technology to support, facilitate and improve student learning and ensuring the business continuity of the University."*

The digital expansion of teaching and learning and the digitisation of academic offerings are not merely technological changes. They are part of a plan to make things seem more helpful. This is a major principle in the TAM. As a result, Mabidi (2024:110) argues that the adoption of digital tools in South African HEIs is often hindered when staff do not see a direct link between the tool and their core pedagogical mission. This is a different finding from the documentary evidence, which highlights how crucial the digital teacher action plan is for ensuring that students can use the tools to which they have access.

The findings indicate that these technologies serve a more significant strategic purpose once implemented to assist individuals in making decisions grounded in facts. This

indicates that HEIs are moving away from traditional management methods and towards a more objective, proactive governance model by using digital technologies to make decisions based on data. This results in digitisation processes that align with a university's core mission, while remaining adaptable to necessary modifications. This change is like the ability and reinforcement stages of the ADKAR model, given that digital tools that help people make decisions based on facts help new behaviours stick.

4.7.4 Sub-theme 4: Building digital competencies and skills for transformation

In the era where digital technologies are continuously developing, it is important to enhance the necessary digital skills capacity of employees. The documentary evidence speaks in favour of this, as it has highlighted that the achievement of digital transformation is subject to the degree of digital competence among the academic and support staff to succeed in a digital environment. This finding is echoed in the following illustrative quote:

"In the era of digital transformation, developing digital literacy and technological competence among faculty [sic] and students has become a cornerstone of higher education modernization. Digital literacy is not limited to basic technological skills, but also includes the ability to critically evaluate, responsibly use, and innovatively apply digital tools in academic and professional settings. Therefore, institutions must prioritise the development of targeted strategies to equip stakeholders with the capabilities required to thrive in a digital environment." (Yin & Ying 2025:1282)

The findings suggest that this could be done through continuous professional development (CPD) opportunities, which are significant for ensuring the successful management of change. The documentary evidence suggests that this process is not an event-based, but a continuous, strategic endeavour. The importance of developing digital skills is to build capability and digital literacy among the university students and staff. In other words, this means that the goal is to make people realise that digital skills are no longer only for IT experts, but they are now a crucial skill that everyone who works for HEIs must have. The results have similarities with Chaanoun's (2022:20) and O'Dea's (2023:96) works, as found in Subsection 2.11.3 of this study, which highlighted that training and developmental activities are strategies to equip employees with skills and knowledge that are vital to managing new digital tools and processes. The following quote reinforces this strategic importance.

“Further attention will be aimed at ensuring that the University support staff are equipped with the skills and expertise necessary for 4IR, and this shall be done by ensuring more resources are provided towards the training and development of employees.” (WSU, Strategic Plan, 2024:34)

The findings are consistent with the ADKAR change management model (Hiatt, 2006:43), which suggests that change must happen on a personal level. To change, people need clear information, the chance to learn new things, and help putting those new things into practice. The results also indicate that many workers do not have the right training programmes. Without CPD programs, the workforce is not ready to implement new digital strategies. This leads to frustration, resistance, and ultimately, the end of the process of change. Consequently, investment in human capital must not be regarded merely as a facilitating measure, but as a crucial mitigating action to effectively transition the change agenda from awareness to enduring capability.

4.8 Theme 5: Leadership and Organisational Culture in Transformation

This theme discusses the findings from the document analysis pertaining to the third secondary research question.

The analysis indicates that leadership is viewed as an important part of change management, highlighting the need for leaders to help staff through changes and ensure that the organisation is aligned. However, the contrasting finding indicates that some leaders are ineffective. That is, organisations need to change how they do things to deal with the changes in culture and behaviour that come with digital transformation. The following quote illustrates this.

“Ineffective leadership constitutes a significant barrier to successful DT within HEIs, necessitating strategic adaptations to address inherent cultural and behavioural shifts.” (Singun, 2025:17)

Owing to the leadership ineffectiveness, there is a lack of integration and coordination in strategy. In other words, the documentary evidence demonstrates that resistance to change is not an isolated event, but is triggered by leadership inefficiencies. When leaders do not give clear directions, employees become confused and resistant. The outcome of this is that there is lack of comprehensive coordinated approaches, which

causes change models to be applied inconsistently or abandoned. The following quote illustrates the lack of integration and coordination in strategic implementation.

"The main takeaway is that there is a lack of consistency across universities and that the reaction to COVID-19 was not led by a national government; rather, it was led by a variety of stakeholders, sometimes in a fragmented manner that did not target all learners." (Mhlanga, 2022:13)

By contrast, the documentary evidence highlighted significant enabling frameworks for improving leadership efficiency in digital strategies. First, ethical leadership has been mentioned, with respect to it establishing the foundational role of leadership in change management. This foundation creates a supportive culture and a culture of stakeholder engagement. This means that digital transformation and innovation should not be siloed but be embedded as cross-cutting themes. This then results in HEIs that develop a high-performance culture, capable of navigating cultural and workforce shifts. This is supported by Gborogbosi and Amah (2025:340), who stated that the effectiveness of change models in HEIs is directly related to how well they fit in with the culture that is already there, rather than being forced on people as technical requirements.

4.9 Theme 6: Governance, Policy, and Strategic Alignment in Digital Transformation

This theme discusses the findings from the document analysis pertaining to the third secondary research question.

The document analysis indicates that institutional governance and policy serve as both a challenge and a vehicle for institutional development. The results indicate that there is conflict between weak internal policies and the rise of intelligent governance models that use data-driven strategies to make decisions in a more modern way. This division echoes the findings of Mabasa and Maluka (2024:12), which indicate that governance structures in HEIs can both hinder and facilitate transformation, dependent upon the interpretation and implementation of policies.

A significant challenge that has been recognised in institutional discourse is that policies pertaining to digital transformation objectives are often ambiguous and subject to

inconsistent interpretation. This results in structural deficiencies that impede a unified response to technological changes. According to Ezzeddine *et al.* (2023:7), ambiguous and inconsistently implemented policies cause resistance and structural weaknesses, compromising institutional preparedness for change. This fits with Lewin's unfreezing stage, which is based on the idea that to make changes, one must shake things up to determine where they are weak.

In addition, the scope of transformation often goes beyond teaching and learning, affecting many parts of an institution that are not directly related to education. These can make it harder for existing governance frameworks to work well. Rahmadi (2024:652) contends that systemic institutional change necessitates integrated strategies that transcend pedagogy, resonating with the focus on "Integrated Transformation Plans" in the University of the Free State (UFS) Strategic Plan. This is in line with Kotter's step of 'creating a vision for change,' which relies on the idea that change must be all-encompassing and mission-driven.

To fill these gaps, the documents that were looked at put "Integrated Transformation Plans" at the top of the list. These plans are the main way in which systemic institutional change will happen. In this context, digitisation is viewed as a means to fulfil the mission, guaranteeing that the integration of technology continues to be in line with a university's main academic goal. Kausar *et al.* (2025:318) stress that digitalisation should be driven by a mission, rather than by technology. This is similar to what the University of Cape Town (UCT) Strategic Plan says about ensuring that change fits with the institution's purpose. This is in line with the TAM's "perceived usefulness" dimension, which stresses that the adoption of technology depends on how well it fits with an institution's goals.

The associated illustrative quotes are as follows.

*"The previous strategy period also placed a strong emphasis on the Integrated Transformation plan with its focus on systems and processes." (*UFS, Strategic Plan, 2024:7)

"Our missions speak to UCT's evolution over the last nearly 200 years (since 1829), and they articulate our approach and commitment towards achieving our purpose. They demonstrate how we have transformed as a university to meet the needs of each new

era we found ourselves in. Not only that, but they also build on our strengths and what we are known to do with excellence. As shared three missions have defined our success, enabled our sustainability and built our global reputation over the last 196 years," (UCT, Strategic Plan, 2030:10)

This shift towards intelligent governance and adaptive management is characterised by a values-based framework and systems thinking. Zhu (2025:4) stresses that adaptive governance needs data-driven decision-making and a broad view of systems, whereas Leal Filho *et al.* (2025:12) demonstrate that involving stakeholders based on their values is important for long institutional change. These concepts align with Kotter's notion of anchoring new approaches in the culture and Lewin's "refreezing" stage, wherein values and systems thinking integrate change into an institution's identity.

4.10 Theme 7: Strategic and Transformational Leadership for Change

This theme discusses the findings from the document analysis pertaining to the third secondary research question.

The research findings emphasise that for digital transformation to succeed in HEIs, it is imperative to adopt proactive strategic change leadership. The analysis show that transformational leadership is required to deal with the challenges of digital maturity. In other words, there should be a shift beyond just implementing technology to a deeper change in the organisation. This underlines that a key part of this leadership style is to encourage collaboration, where leadership and team collaboration are important in implementing digital strategies. Further analysis indicates that instead of giving direction from the top down, good leaders encourage employees to promote a digital maturity vision that gives everyone a sense of ownership.

The following quotes indicate that to make digital transformation work, leaders need to do more than only managing technology adoption. They need to inspire, empower, and involve employees.

"It underscores the imperative of forging change rather than merely responding to it, harnessing the power of technology, rather than being 'driven' by it, and collapsing the binary of problem-posing and solution-seeking in the quest for sustainable and just solutions to society's challenges." (WSU, Strategic Plan, 2024:29)

"This strategy is a culmination of a rigorous and extensive process that involved robust discussions and input by internal and external stakeholders." (NWU, Strategic Plan, 2024:6)

The analysis highlights that leadership plays an important role in creating the right cultural climate. These results fit very well with Kotter's eight-step change model. The focus on urgency and building coalitions indicates that leaders need to take the lead in digital transformation, instead of waiting for outside forces to push them. This is confirmed by Rahmadi (2024:656) and Kiplangat (2025:71), who stated that leaders should expect change, and not only react to it. Furthermore, the formulation and dissemination of a collective vision, as emphasised in the WSU and NWU strategic plans, correspond with Kotter's advocacy for vision-driven transformation. Finally, tying digital strategies to the culture of an institution demonstrates that transformational leadership is not only about getting people to use new technologies, but also about spreading new values and ways of doing things throughout HEIs.

4.11 Conclusion

The results in this chapter indicate that digital transformation in HEIs is a complicated, multifaceted process that goes beyond adopting new technology. The analysis reveals a substantial conflict between the strategic aspirations of digital universities and the operational challenges posed by deteriorating infrastructure, outdated systems, and financial limitations. These structural barriers, along with institutional inertia and goals that are not aligned across departments, often lead to makeshift solutions, instead of lasting, long-term change. The chapter critically demonstrates that ineffective leadership and unclear digital visions are principal factors of employee resistance and uncertainty. By contrast, successful projects are based on a framework that puts the following first: consultative and participatory change management to reduce stakeholder confusion, CPD to bridge the digital skills gap among staff, and data-driven governance and adaptive management to align technology with the institutional mission.

In the end, this chapter indicates that for digital transformation to work and be equitable, HEIs need to move away from siloed operations and, instead, work on a single transformation plan led by visionary, ethical leaders who encourage a high-performance culture.

4.12 Chapter Summary

This chapter outlines seven overarching themes that describe digital transformation as a diverse, gradual procedure, rather than a simple technological advancement. The findings indicate that infrastructure problems and outdated systems can make users fatigued, and that weak leadership and institutional inertia can make it hard to have a unified digital vision. Participatory communication, strategic pacing, and CPD are all elements of a successful strategy. Overall, the data indicates that smart governance and a transformational leadership style are needed for successful change to ensure that technology use fits in with the culture of the institution.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

The rapid acceleration of digital technologies, mainly driven by the COVID-19 pandemic, has placed immense pressure on HEIs globally to adopt comprehensive digital transformation strategies. The problem statement highlighted a persistent research gap that much of the available literature tends to overlook the human-centred change management approaches that are essential for sustaining digital transformation in HEIs. The primary purpose of this study was to explore what is known from documentary responses about the digitisation strategies, from a change management perspective, that were employed by HEIs in their digital transformation efforts? This was supplemented by secondary research questions that focused on the challenges and limitations in HEIs' digitisation strategies with respect to change management, the change management strategies that have been associated with successful digital transformation initiatives in HEIs, and lastly the influence of the institutional factors, such as leadership, culture, and resources, impact the selection and efficacy of change management models in HEIs.

A qualitative research design was adopted, guided by the interpretivist philosophy and the inductive approach to theory development, as structured by the research onion model (Saunders *et al.,* 2023:131). The primary research strategy that was employed is documentary analysis, which focused on peer-reviewed academic articles and strategic plans that were published within a contemporary cross-sectional time horizon (2022–2025). However, certain strategies that were developed before 2022 were included if it included the time range mentioned.

The data analysis was conducted through Braun and Clarke's (2021:57) six step thematic analysis process enabled by the ATLAS.ti software (version 24), while ensuring the credibility, dependability, transferability, and confirmability of the findings.

The analysis generated seven overarching themes, with sub-themes where applicable. These themes collectively address all the research questions and objectives and form the foundation for the study's conclusions. The following sections summarise the findings of this study.

5.2 Summary of the Findings

The thematic analysis results present a complex and multifaceted view of digital transformation in HEIs, indicating that success depends on integrating technological and socio-cultural changes.

5.2.1 Challenges and limitations in HEIs digitisation strategies

The findings imply that digital transformation in HEIs is not largely a technical shift, but a holistic change management challenge caused by a vicious cycle of structural and social barriers. Financial constraints are at the centre of the problem, particularly for institutions situated in rural areas. This further exacerbate legacy systems which illustrates the disconnect between institutional vision and the current operational reality. As Gibson *et al.* (2022:258) assert that enduring technical debt not only constitutes a financial problem but also a digital ethics issue, wherein the consequences of ineffective leadership choices are imposed upon employees, thereby undermining the trust essential for collective transformation.

This weak infrastructure, along with a growing age gap, turns inherent doubt into rooted institutional resistance. As a result, older employees often see digital adoption as a burden instead of an improvement. These human centric challenges are worsened by weak internal digital transformation policies, leading to continued departmental silos, disrupting what should be a common path for the entire institution. This corresponds with Zhao *et al.* (2024:5), who maintain that decentralised autonomy, lacking competent resource management, unavoidably undermines digital governance and hinders sustainable cultural transformations.

In essence, these documented barriers reveal that until HEIs narrow the gap between their strategies and the everyday realities of their staff, digital transformation will continue to be a series of isolated experiments instead of lasting change in culture.

5.2.2 Change management strategies associated with successful digital transformation initiatives in HEIs

The findings show that digital transformation initiatives in HEIs involves a transition from perceiving technology as technical endeavour to recognising it as an organisational advancement grounded in human-centered change management. The analysis suggests that the most effective way to minimise employee ambiguity is to use a consultative, participatory approach. Through shifting away from top-down directives toward co-design, HEIs creates a sense of ownership that directly reduces resistance. Newman *et al.* (2025:11) claim that transparent and participatory communication fosters an environment in which staff feel secure to explore with new tools despite fear of failure.

Furthermore, successful organisations use strategic pacing because they know that change is a process that takes time, not just a single event. This approach facilitates short-term successes that establish progress, particularly when staff can see a strong connection among digital resources and their main academic objective. According to Granić (2019:2572) perceived usefulness is the most significant consideration for continuous use in HEI settings. This means that staff sees the tool as an assistant with their teaching or research workload. In other words, when staff believe that digital tools genuinely support their daily endeavours, and when change is incremental to allow visible progress, adoption will increase.

Overall, the results show that improving digital skills through ongoing professional development is not a benefit but a strategic requirement. By moving from basic IT training to a more holistic approach to digital proficiency, HEIs help their staff advance from just being aware of digital technology to the "Ability" and "Reinforcement" stages of the ADKAR model. This makes sure that the digital-first environment grows into a permanent part of the institution instead of just a temporary response to a crisis.

5.2.3 The influence of institutional factors including leadership, culture, and resources, on the selection and efficacy of change management models in HEIs

The findings show that leadership and governance are the most important factors that can either make or break digital transformation in HEIs. The analysis shows a significant

tension: although visionary leadership is a crucial facilitator, ineffective leadership continues to be a principal driver for employee resistance and strategic breakdown. The data shows that when leaders don't give a clear direction, change initiatives are often abandoned or not followed through on. This lack of effective leaderships creates an absence in implementation where staff are uncertain about what to do, and feel disconnected to the digital goal (Singun, 2025:14).

On the other hand, the rise of intelligent governance and integrated transformation plans, as seen in the UFS and UCT strategies, shows that digitisation is moving toward a purpose-driven model. According to the Technology Acceptance Model (TAM), adoption increases when staff see a clear connection between digital tools and the digital mission of an organisation. This alignment is crucial because, as Kausar *et al.* (2025:318) assert that digitalisation must be mission-oriented rather than technology-oriented to ensure it aligns with the perceived benefit of the academic community.

To get to transformational leadership, you need to move from a top-down mandate to a framework based on values and collaboration. This makes sure that digitisation isn't just forced on the culture, but is refrozen into the university's high-performance future.

5.3 Managerial Recommendations

Based on this study's findings, the following practical recommendations are made for the management of HEIs to enhance their digital transformation initiatives.

- HEIs in developing economies, where systemic inequality is a primary driver of resistance should move away from one size-fits all mandates and implement context-specific change frameworks.

- The context specific change frameworks should be developed from a human centric perspective, where co-designing, strategic pacing, and consultative/participatory approach elements should be included.

- To address the age divide gap HEIs should create a sandbox environment where older staff can fail safely without it affecting their performance reviews.

- HEIs should continue with skills development initiatives but should strengthen monitoring and evaluation by making it a footing in staff's personal development plans.

- The Department of Higher Education and Training of the Republic of South Africa Should develop an earmarked digital infrastructure grant, especially for universities situated in underdeveloped areas.

- To help create digital policies, HEIs should develop digital change coalitions, which are cross-functional teams made up of academics, IT professionals, and students. This digital change coalitions will improve departmental silos.

- To be successful leaders in the digital era, leadership teams need also receive additional training.

5.4 Limitations of the Study

In this study, the student relied solely on secondary data through document analysis. While this approach aided the student to answer the research questions, it restricted the ability to capture real-time perspectives and lived experiences of staff and students. A second limitation of this study is the cross-sectional time horizon which included documents from 2022-2025. This limits generalisability to other timeframes.

5.5 Recommendations for Future Research

The results from the documentary analysis have identified several opportunities for future empirical research:

- Future research studies should conduct a longitudinal study examining the psychological contract of academic staff during digitisation. This would explain in greater detail how persistent technical issues have detrimental effect on the ADKAR change model's desire and awareness stages.
- Future research should look into how well human-centered, co-designed frameworks work to get more staff involved and using digital tools in higher education.

- Future research studies could assess the impact of targeted digital infrastructure funding on HEIs in underdeveloped areas, including level of access and institutional capacity.
- Future research studies should collect primary data such as interviews, and surveys from staff, students, and institutional leaders.
- Future research should aim to conduct a longitudinal design, collecting data over a period to examine the development of digital transformation strategies and the lasting impacts of conventional approaches like context-specific frameworks or leadership training.

5.6 Conclusions of the Study

This dissertation has explored and analysed the digitisation strategies of HEIs, from a change management perspective. This was achieved through documentary analysis

We could learn from the findings of this study that HEIs experience several challenges from structural and social factors point of view. These challenges hinder HEIs from successfully navigating through the digital storm. They range from financial constraints, legacy infrastructure, a growing age divide, and departmental silos.

We could also learn from the findings that there are key change management factors that need to be included in digital strategies to address resistance which include human centric change management, consultative and participatory approaches for digital change, co-design directives, strategic pacing, and continuous digital skills training.

Furthermore, effective leadership and governance have also been identified as enablers of change.

These findings are significant because it provides a blueprint for HEIs to successfully implement digital technologies. This calls for an integrated human-centric approach for digital transformation in HEIs. Failure to approach it from this view might lead to employee resistance, which will widen the deep-rooted digital divide.

REFERENCES

Abu Shaqra, R. K. 2024. Evaluating the effectiveness of change management in Jordanian universities according to Lewin's model: an analytical study of faculty members' opinions. *Pakistan Journal of Life and Social Sciences*, 22(2):19843-19855. https://doi.org/10.57239/PJLSS-2024-22.2.001451

Adiwijaya, A., Grisna, A., Gozali, A., Ramadhana, M. & Purbolaksono, M. 2025. Digital transformation in higher education: developing a new framework. *Globalisation, Societies and Education,* 1-22. https://doi.org/10.1080/14767724.2025.2520952

Agnes, J. 2022. Gaining and training a digital colleague: employee response to robotization. *Journal of Applied Science*, 58(1):29-64. https://doi.org/10.1177/00218863211043596

Ahmad, T., Boit, J. & Aakula, A. 2023. The role of cross-functional collaboration in digital transformation. *Journal of Computational Intelligence and Robotics*, 3(1): 205-242. https://thesciencebrigade.com/jcir/article/view/473

Al-Emran, M. & Al-Sharafi, M. 2022. Revolutionizing education with Industry 5.0: challenges and future research agendas. *International Journal of Information Technology and Language Studies*, 6(3):1-5. https://journals.sfu.ca/ijitls/index.php/ijitls/article/download/317/pdf

Alenezi, M. 2021. Deep dive into digital transformation in higher education institutions. *Journal of Education Science*, 11, art# 770. https://doi.org/10.3390/educsci11120770

Alfadhel, A., Bin Kassim, M., Bin Ashaari & Mahar, S. 2025. The impact of digital transformation readiness on strategic decision effectiveness in higher education institutions: Mediating role of technological infrastructure capability. *International Journal of Innovative Research and Scientific Studies*, 8(8):184-190. https://doi.org/10.53894/ijirss.v8i8.10576

Al-Fugaha, Z., Alshurideh, M., Zighan, S., Alzoubi, A., Shatnawi, T., Aityassine, F., Al-Aawawadeh, R., Alzyoud, M., Mohammad, A. & Al-Hawary, S. 2024. The impact of implementing disruptive technology on organizational change: A field study in private

universities in Jordan. In: Musleh Al-Sartawi, A.M.A., Aydiner, A.S., Kanan, M., eds. *Business analytical capabilities and artificial intelligence-enabled analytics: applications and challenges in the digital era*. Cham, Switzerland: Springer. pp. 389-402. Available from Springer eBook collection: https://doi.org/10.1007/978-3-031-56015-6_3 Date of access: 20 Sep. 2025.

Ali Emran, H. A., & Elhony, F. M. 2025. The role of inclusive leadership in enhancing digital transformation field study. *East Asian Journal of Multidisciplinary Research,* 4(8): 4069-4078. https://doi.org/10.55927/eajmr.v4i8.330

Alejandro, A., T. 2025. Approach to effective change management for university digital transformation projects. Paper delivered at the 28th International Congress on Project Management and Engineering, Jaen, Spain. https://doi.org/10.61547/2407001 Date of access: 19 Aug. 2025.

Appelbaum, S.H., Habashy, S. Malo, J. & Shafiq, H. 2012. Back to the future: revisiting Kotter's 1996 change model. *Journal of Management Development*, 31(8): 764–782. https://doi.org/10.1108/02621711211253231

Arksey, H. and O'Malley, L. 2005. Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology*, 8 (1). 19-32. https://doi.org/10.1080/1364557032000119616

Asmawi, A., & Alam, M. S. 2024. Qualitative research: Understanding its underlying philosophies. *Forum for Philosophical Studies*, *2*(1), art. #2836. https://doi.org/10.59400/fps2836

Awashreh, R. & Hamid, A. A. 2025. The role of entrepreneurial leadership in driving employee innovation: the mediating effect of knowledge sharing. *Cogent Business & Management*, 12(1). Art. #2466812. https://doi.org/10.1080/23311975.2025.2466812

Baalmans, B.S., Broekhuizen, T.L.J. & Fabian, N.E. 2021. *Digital transformation: a guide for managers*. Groningen: Groningen Digital Business Centre (GDBC), University of Groningen.

Babalola, S. & Genga, A. 2024. Managing digital transformation in African higher education institutions: challenges and opportunities. *International Journal of E-Learning & Distance Education*, 39(1):1-44. https://doi.org/10.55667/10.55667/ijede.2024.v39.i1.1333

Balogun, J. & Hailey, V.H. 2008. *Exploring strategic change*. London: Pearson Education.

Barnett, R. 2022. *The philosophy of higher education: a critical introduction*. London: Routledge Taylor & Francis.

Beno, M., 2019. The implications of the industrial revolutions for higher education. Paper delivered at the 4th Theory and Applications in the Knowledge Economy Conference of Austria, Vienna. https://www.researchgate.net/profile/Michal-Beno-2/publication/335442210_The_implications_of_the_Industrial_Revolutions_for_Higher_Education/links/604b5b8192851c1bd4e31ba4/The-implications-of-the-Industrial-Revolutions-for-Higher-Education.pdf Date of access: 13 Aug. 2025.

Berghaus, S. 2016. The fuzzy front-end of digital transformation: three perspectives on the formulation of organizational change strategies. *MIT Sloan Management Review*, 55(2):1

Bhandari, P. 2021. *Ethical consideration in research, type and examples*. Available at https://www.scribbr.com/methodology/research-ethics/ Date of access: 19 Apr. 2025.

Bharadiya, J. P. 2023. The impact of artificial intelligence on business processes. *European Journal of Technology,* 7(2): 15-25. https://doi.org/10.47672/ejt.1488

Bhattacherjee, A. 2012. *Principles, methods, and practices. Social Science Research*. University of South Florida: Digital Commons.

Bonfield, C., Salter, M., Longmuir, A., Benson, M. & Adachi, C. 2020. Transformation or evolution? Education 4.0, teaching and learning in the digital age. *Higher Education Pedagogies*, 5(1):223-246. https://doi.org/10.1080/23752696.2020.1816847

Bowen, G., A. 2009. Document analysis as a qualitative research method. *Qualitative Research Journal*, 9 (2):27–40. https://doi.org/10.3316/QRJ0902027

Braun, V. & Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2):77-101. https://doi.org/10.1191/1478088706qp063oa

Brinker, S. & Baldwin, J. 2020. *MARTECH 2030. Five trends in marketing technology for the decade of augmented marketer*. https://chiefmartec.com/wp-content/uploads/2020/10/martech-2030-brinker-baldwin.pdf Date of access: 9 Jan. 2025.

Broccardo, L., Zicari, A., Jabeen, F. & Bhatti, Z.A. 2023. How digitalization supports a sustainable business model: A literature review. *Technological Forecasting and Social Change*, 187, art. #122146. https://doi.org/10.1016/j.techfore.2022.122146

Bughin, J. & Catlin, T. 2020. Digital skills for tomorrow's workforce. *Technological Forecasting and Social Change*, 158:119779. https://doi.org/10.1016/j.techfore.2019.119779

Bundtzen, H. & Hinrichs, G. 2021. The link between organizational agility and VUCA – An agile assessment model. *Socio-Economic Challenges*, 5:35-43.

Burke, W.W. 2014. *Organization change: theory and practice*. 4th ed. London: SAGE Publications, Inc.

Bustinza, O.F. 2018. Change management and digital transformation: a strategic framework. *Journal of Business Strategy*, 39(2):13–20.

Carmo, J., Lacerda, D., Klingenberg, C., & Piran, F. 2025. Digital transformation in the management of higher education institutions. *Sustainable Futures*, *9*, art. #100692. https://doi.org/10.1016/j.sftr.2025.100692

Carreno, A. M. 2024. *Building a continuous feedback loop for real-time change adaptation: best practices and tools*. https://doi.org/10.5281/zenodo.14051466

Carvalho, J. V., Pereira, R. H. & Rocha, Á. 2020. A systematic literature review on maturity models for information systems in higher education institutions. *Innovations in*

education and teaching international, 57(4), 434–449. https://doi.org/10.1080/14703297.2019.1648219

Casteel, A. & Bridier, N.L. 2021. Describing populations and samples in doctoral student research. *International Journal of Doctoral Studies*, 16(1):339-362. https://doi.org/10.28945/4766

Cawsey, T., Deszca, G. & Ingols, C. 2012. *Organizational change: an action-oriented toolkit*. 2nd ed. London: SAGE Publications, Inc.

Chaanoun, A. 2022. Digital literacy and competence in organisational innovation. *Journal of Organisational Development*, 14(2):22–30. https://doi.org/10.61424/rjbe.v2i1.128

CHE (Council on Higher Education). 2022. *Vital stats public and private higher education data 2021*. https://www.che.ac.za/sites/default/files/publications/PUB_VitalStats%202021_Public%20and%20Private%20Higher%20Education%20Data_2023%5B66%5D.pdf Date of access: 9 Jan. 2025.

Chukwuere, J. 2024. Rapid review of the COVID-19 pandemic's impact on the digitalization of higher education. *Research on Education and Media*, 16(1): 1-9. https://doi.org/10.2478/rem-2024-0002

Cranefield, J., Winikoff, M., Chiu, Y. T., Li, Y., Doyle, C., & Richter, A. 2023. Partnering with AI: the case of digital productivity assistants. *Journal of the Royal Society of New Zealand*, 53(1):95–118. https://doi.org/10.1080/03036758.2022.2114507

Demir, E., & Kocaoglu, B. 2019. The use of McKinsey's 7S framework as a strategic planning and economic assessment tool in the process of digital transformation. *Press Academia Procedia (PAP),* 9: 114-119.http://doi.org/10.17261/Pressacademia.2019.1078

Díaz-Garcia, V., Montero-Navarro, A., Rodríguez-Sánchez, J., Gallego-Losada, R.2023. Managing digital transformation: A case study in a higher education institution. *MDPI Electronics*, 12, 2522. https://doi.org/10.3390/electronics12112522

Dolk, J. & Johannson, C. 2024. *Captains of change: A qualitative study about how leadership principles are implemented and applied in the context of digital transformation*. Sweden: University of Gothenburg. (Thesis-MA). https://gupea.ub.gu.se/bitstream/handle/2077/82127/MAN%202024-10.pdf?sequence=1&isAllowed=y

Drljić, K., Čotar Konrad, S., Rutar, S., & Štemberger, T. 2025. Digital equity and sustainability in higher education. *Sustainability*, 17(5), art. #2011. https://doi.org/10.3390/su17052011

Durrah, O., Charbatji, O., Chaudhary, M., & Alsubaey, F. 2022. Authentic leadership behaviors and thriving at work: Empirical evidence from the information technology industry in Australia. *Psychological Reports*, 127(4):1911-1940. https://doi.org/10.1177/00332941221144601

Dutta, S. 2025, 11 February. *Top 11 digital transformation challenges and solutions (2025)* [Blog post]. https://www.mayuraconsultancy.com/blog/top-digital-transformation-challenges-and-solutions Date of access: 22 Mar. 2025.

Ehinmilorin, E. 2021. Change management process: An integrated analysis of the importance of effective communication in an organization. *European Journal of Business and Management*, 13(24):1-7. https://doi.org/10.7176/EJBM/13-24-01

Ezzeddine, R., Otaki, F., Darwish, S. & AlGurg, R. 2023. Change management in higher education: A sequential mixed methods study exploring employees' perception. PLOS ONE, 18(7), e0289005. https://doi.org/10.1371/journal.pone.0289005

Fernández, A., Gómez, B., Binjaku, K. & Mece, E. 2023. Digital transformation initiatives in higher education institutions: v multivocal literature review. *Education and Information Technologies*, 28:12351–12382. https://doi.org/10.1007/s10639-022-11544-0

Fitzgerald, M., Kruschwitz, N., Bonnet, D. & Welch, M. 2013. Embracing digital technology: a new strategic imperative. *MIT Sloan Management Review,* 55(2), 1-12. https://emergenceweb.com/blog/wp-content/uploads/2013/10/embracing-digital-technology.pdf

Fouché, C.B., Strydom, H., & Roestenburg, W.J.H. 2021. *Research at grass roots: For the social sciences and human service professions*. 5th ed. Pretoria: Van Schaik Publishers.

Friedman, B.D. & Allen, K. N. 2011. Frameworks for Clinical Practice. In: Brandell, J., ed. *Theory & practice in clinical social work*. 2nd ed. London: SAGE Publication. pp. 3-20.

Gadzali, S.S., Gazalin, J., Sutrisno, S., Prasetya, Y.B., & Almaududi Ausat, A.M. 2023. Human resource management strategy in organisational digital transformation. *Journal Minfo Polgan*, *12*(1): 760-770. https://doi.org/10.33395/jmp.v12i1.12508

Gao P. & Gao Y. 2024. How does digital leadership foster employee innovative behaviour: a cognitive-affective processing system perspective. *Behavioural Science (Basel)*, 14(5):362.

García-Morales, V.J., Garrido-Moreno, A. & Martín-Rojas, R. 2021. The transformation of higher education after the COVID disruption: emerging challenges in an online learning scenario. *Frontiers in Psychology*, 12, art. #616059. https://doi.org/10.3389/fpsyg.2021.616059

Gartner. 2025. *The CIO's Guide to Digital Transformation. https://www.gartner.com/en/information-technology/topics/digital-transformation/ Date of access: 12 Aug. 2025.*

Gborogbosi, L., & Amah, E. 2025. The effectiveness of change management models in different industries. South Asian Research Journal of Business and Management, 7(3): 333-343. https://doi.org/10.36346/sarjbm.2025.v07i03.017

Gibson, J.P., Gordon, D., Collins, M., Narouwa, M., O'Sullivan, D., & Turner, J. 2022. *Technical debt is an ethical issue*. Paper delivered at the 20th International Conference on the Ethical and Social issues in Information and Communication Technologies, Turku, Finland. https://doi.org/10.21427/Y73Z-6P82 Date of access: 17 Mar. 2026

Grandinetti R, Ciasullo M.V, Paiola, M., & Schiavone, F.2020. Fourth industrial revolution, digital servitization and relationship quality in Italian B2B manufacturing firms. An exploratory study. *The TQM Journal*, 32 (4): 647–671. https://doi.org/10.1108/TQM-01-2020-0006

Granić, A., & Marangunić, N. 2019. Technology acceptance model in educational context: A systematic literature review. *British Journal of Educational Technology,* 50(5):2572–2593. https://doi.org/10.1111/bjet.12864.

Graue, C. 2015. Qualitative data analysis. *International Journal of Sales, Retailing & Marketing*, 8(4):5-14.

Groumpos, P. 2021. *Industrial revolutions: past, present, and future*. 2nd ed. London: Routledge.

Hadziahmetovic, N. & Salihovic, N. 2022. The role of transparent communication and leadership in employee engagement. *International Journal of Academic Research in Economics and Management and Sciences*, 11(2):558–571.

Hanelt, A., Bohnsack, R., Marz, D. & Marante, C. 2021. A systematic review of the literature on digital transformation: insights and implications for strategy and organizational change. *Journal of Management Studies*, 58(5), art. #12639. https://doi.org/10.1111/joms.12639

Harrison, R., Fischer, S., Walpola, R.L., Chauhan, A., Babalola, T., & Mears, S. 2021. Where do models for change management, improvement and implementation meet? A Systematic review of the applications of change management models in healthcare. *Journal of Healthcare Leadership*,13:85-108. https://www.tandfonline.com/doi/pdf/10.2147/jhl.s289176

Hashim, M., Razak, R., Muhammad, N., Mansor, F., & Azib, W. 2022. The determinants of digital workplace adoption: A conceptual framework. *International Journal of Academic Research in Business and Social Sciences*, 12(10): 477 – 492. http://dx.doi.org/10.6007/IJARBSS/v12-i10/14822

Hiatt, J. 2006. *ADKAR: A model for change in business, government, and our community.* Available from Google eBooks: https://books.google.co.za/books/about/ADKAR.html?id=Te_cHbWv-ZgC&redir_esc=y Date of access: 5 Mar. 2025.

Hollebeek, L., Sprott, D. & Brady, M. 2021. Rise of the machines? customer engagement in automated service interactions. *Journal of Service Research*, 24(1): 1-12. https://doi.org/10.1177/1094670520975110

Holm, C.G., Kringelum, L. & Anand, A. 2025. Creating effective strategy implementation: a systematic review of managerial and organizational levers. *Review of Managerial Science*. https://link.springer.com/article/10.1007/s11846-025-00880-3

HolonIQ. 2023. *HolonIQ's annual digital transformation survey, conducted with the Global Higher Education Network*. Available at: https://www.holoniq.com/notes/2023-higher-education-digital-transformation-survey/ Date of access: 12 Mar. 2025.

Hong, T., Tung, N., & Thanh, N.2025. Mapping artificial intelligence research in higher education toward sustainable development. *Discover Sustainability,* 6, (1), art. #1240 https://doi.org/10.1007/s43621-025-02162-0

Hughes, M. 2011. Do 70 per cent of all organizational change initiatives really fail? *Journal of Change Management*, 11(4): 451–464. https://doi.org/10.1080/14697017.2011.630506

Hussain, S. T, Lei, S. Akram, T. Haider, M. J., Hussain, S. H. & Ali, M. 2018. Kurt Lewin's change model: a critical review of the role of leadership and employee involvement in organisational change. *Journal of Innovation & Knowledge*, 3(3):123-127. https://doi.org/10.1016/j.jik.2016.07.002

Irimiaș, T. 2021. Measuring and monitoring change in a strategic business context: considerations on the role of organizations' composition elements. *CES Working Papers: Centre for European Studies*, 13(2):159-180.

Jabrane, K. & Bousmah, M. 2021. A new approach for training cobots from small amount of data in Industry 5.0. *International Journal of Advances Computer Science and Applications*, 12(10):634-646. https://doi.org/10.14569/IJACSA.2021.0121070

Jinga, M., Guo, Z., Wu, X., Yang, Z. & Wang, X. 2025. Higher education digital academic leadership: perceptions and practices from chinese university leaders. *Education Sciences*, 15(5):1-27. https://doi.org/10.3390/educsci15050606

Joel, O.S., Oyewole, A.T., Odunaiya, O.G. & Oluwatobi, T.S. 2024. The impact of digital transformation on business development strategies: Trends, challenges, and opportunities analyzed. *World Journal of Advanced Research and Reviews*, 21(03): 617-624. https://doi.org/10.30574/wjarr.2024.21.3.0706

Johnson, L. 2020. *The impact of Moore's Law on technology and society*. Boston: MIT Press.

Kalpokaite, N. & Radivojevic, I. 2019. Researching and engaging with the computer-assisted qualitative data analysis software ATLAS.ti. In: Costa, A.P., Brandão, C. & da Costa, P, E. eds. Conference proceedings. *4th World Conference on Qualitative Research (*WCQR 2019*),* Oporto, Portugal. pp. 120-121.

Kalsoom, T., Ahmed, S., Rafi-ul-Shan, P. M., Azmat, M., Akhtar, P., Pervez, Z., … Ur-Rehman, M. 2021. Impact of IoT on manufacturing Industry 4.0: a new triangular systematic review. *Sustainability*, 13(22):12506. https://doi.org/10.3390/su132212506

Kane, G., Palmer, D., Phillips, A., Kiron, D. & Buckley, N. 2015. *Strategy, not technology, drives digital transformation. Becoming a digitally mature enterprise.* MIT Sloan Management Review. https://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/ Date of access: 11 Jun. 2025

Kang, S., Chen, Y., Svihla, V., Gallup, A., Ferris, K. & Datye, A. 2020. Guiding change in higher education: an emergent, iterative application of Kotter's change model. *Studies in Higher Education*, DOI: https://doi.org/10.1080/03075079.2020.1741540

Kanyane, M. 2023. *Digital work-transforming the higher education landscape in South Africa.* Available from Springer Nature e-books: https://doi.org/10.1007/978-3-031-26490-09 Date of access: 15 Jun. 2025.

Karimi, H. & Khawaja, S. 2024. Inclusive leadership. *Applied Science and Technology*, 8(6):2403-2414. https://doi.org/10.55214/25768484.v8i6.2486

Kausar, S., Arif, M. & Sebgag, S., 2025. Transformational leadership and the challenges of educational digitalization: A systematic literature review (2020–2025). *Transformative Islamic Education Manaement* 10(2):312–332. https://doi.org/10.31538/ndhq.v10i2.196

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

Kikon, P. 2021. Archival research method analysis. *Journal of Advanced Research in Library and Information Science*, 8(1):13-15.

Kiplangat, H., K. 2025. Transformational leadership in higher education: empowering Africa's future. *Journal of Research and Academic Writing,* 1(2), 65–73. https://www.ajol.info/index.php/jraw/article/view/288566

Kotter, J. 2012. Leading change. Boston, MA: Havard Business Review Press.

Kraus, S., Durst, S., Ferreira, J.J., Veiga, P., Kailer, N. & Weinmann, A. 2022. Digital transformation in business and management research: an overview of the current status quo. *International Journal of Information Management*, 63, art. #102466. https://doi.org/10.1016/j.ijinfomgt.2021.102466

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. *SAGE Open*, 11(3):1-15. https://doi.org/10.1177/21582440211047576

Lambert, M. 2012. *A beginner's guide to doing your education research project*. Los Angeles: SAGE.

Law, M.2024. Leadership and change management in the transition to online curriculum delivery in Malaysia: a comparative case study. *Journal of Applied Research in Higher Education*, 16 (4):1146–1159. https://doi.org/10.1108/JARHE-02-2023-0054

Leal Filho, W., Sigahi, T., Anholon, R., Rebelatto, B., Schmidt-Ross, I., Hensel-Börner, S., Franco, D., Treacy, T. & Brandli, L. 2025. Promoting sustainable development via stakeholder engagement in higher education. *Environmental Sciences Europe,* 37(1):1-20. https://doi.org/10.1186/s12302-025-01101-0

Lehmann, H. 2010. Research method: grounded theory for descriptive and exploratory case studies. *The Dynamics of International Information Systems*, 23: 53-65. https://doi.org/10.1007/978-1-4419-5750-4_5

Li, Q., Ma, Y., Wang, X., Wang, Y., Zhang, P., Kaur, A., & Palaroan, R. 2026. Understanding student engagement in digital higher education: A Meta-Analysis of antecedents and outcomes. *Educational Process International Journal*, 20(1), art. #e2026008. https://doi.org/10.22521/edupij.2026.20.8

Lim, C. L., et al. 2023. Leadership strategies in digital assessment adoption: A case study in Malaysian institutions. Journal of Education Technology.

Lincoln, Y.S. & Guba, E.G. 1982. *Establishing dependability and confirmability in naturalistic inquiry through an audit*. Paper delivered at the annual meeting of the American Educational Research Association, New York, NY. https://files.eric.ed.gov/fulltext/ED216019.pdf Date of access: 19 Jun. 2024.

Lubinga, S., Maramura, T. & Masiya, T. 2023. Adoption of Fourth Industrial Revolution: challenges in South African higher education institutions. 6(2):1-17. https://doi.org/10.46303/jcve.2023.5

Lund, J. 2024, 15 May. *How customer experience drives digital transformation* [Blog post]. https://www.superoffice.com/blog/digital-transformation/ Date of access: 22 Mar. 2025.

Mabasa, F., D. & Maluka, H., R. 2024. The complexities of higher education leadership and management in the digital era. *Journal of Public Administration and Development Alternatives*, 9(2): 213–224. https://doi.org/10.55190/JPADA.2024.335

Mabidi, N. 2024. A systematic review of the transformative impact of the digital revolution on higher education in South Africa. *South African Journal of Higher Education*, 38(3). https://dx.doi.org/10.20853/38-3-6366

Mabotha, P. A. P., & Ngcamu, B. S. 2026. Digital transformation in the higher education sector: A systematic literature review. *Administrative Sciences*, 16(1):1-23. https://doi.org/10.3390/admsci16010001

Manga, M. 2023. The impact of digital leadership and transformational leadership on digital transformation. *International Journal of Social Science Research and Review,* 8(9), 387-398. https://doi.org/10.47814/ijssrr.v8i9.2970

Maphosa, V. & Maphosa, M. 2023. African higher Education institution's response to COVID-19: A bibliometric analysis and visualisation study. *Journal of Information & Communications Technology in Education*, 10(2):2273002. https://doi.org/10.1080/2331186X.2023.2273002/

Mateko, F. M., Dowelani, M. & Sinamano, R.2025. Digital inequality and transformation in South African higher education during COVID-19: A comparative analysis of historically disadvantaged and historically advantaged universities. *High Education Policy*. https://doi.org/10.1057/s41307-025-00416-0

Matsunaga, M. 2024. Uncertainty in the age of digital transformation. In: *Employee uncertainty over digital transformation. Future of Business and Finance*. Springer, Singapore. pp. 11-84. https://doi.org/10.1007/978-981-99-8409-1_2

McCombes, S. & George, T. 2022. *What is a research methodology?* https://www.scribbr.com/dissertation/methodology/ Date of access: 10 Jun. 2025.

McKinsey (McKinsey & Company). 2020. How COVID-19 has pushed companies over the technology tipping point-and transformed business forever. https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/how-

covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever/ Date of access: 10 Jun. 2025.

McKinsey (McKinsey & Company). 2022. *What are the industry 4.0, the fourth industrial revolution, and 4IR? https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-are-industry-4-0-the-fourth-industrial-revolution-and-4ir#/* Date of access: 5 Mar. 2025.

McIvor, R. 2025. Leading change in digital transformation. In: *Digital Transformation*. Palgrave Executive Essentials. Springer, 231–252. https://link.springer.com/chapter/10.1007/978-3-031-99258-2_10

Melnikovas, A. 2018. Towards an explicit research methodology: adapting research onion model for future studies. *Journal of Futures Studies*, 23(2):29-44. https://doi.org/10.6531/JFS.201812_23(2).0003

Memarian, B. & Doleck, T. 2025. Education with a systems theory and control perspective. *Education Information Technologies*, 30:12249–12266. https://doi.org/10.1007/s10639-024-13223-8

Mhlanga, D., Varaidzo, D. & Moloi, T. 2022. COVID-19 and the key digital transformation lessons for higher education institutions in South Africa. *Journal of MDPI Education Sciences*, 12(7):464. https://doi.org/10.3390/educsci12070464

Moore, G. 1965. Cramming more components onto integrated circuits, Reprinted from Electronics. *IEEE Solid-State Circuits Society Newsletter*, 38(8):33-35. https://doi.org/10.1109/N-SSC.2006.478586

Mosseri, S., Vromen, A., Cooper, R. & Hill, E. 2023. Between frustration and invigoration: women talking about digital technology at work. *Work, Employment and Society*, 37(6):1681–1698. https://doi.org/10.1177/09500170221091680

Mtau, T. & Rahul, N. 2024. Optimizing business performance through KPI alignment: a comprehensive analysis of key performance indicators and strategic objectives. *American Journal of Industrial and Business Management*, 14:66–82. https://www.scirp.org/journal/paperinformation?paperid=130918

Nadeem, K., Wong, S., Za, S. & Venditti, M. 2024. Digital Transformation and Industry 4.0 employees: empirical evidence from top digital nations. *Journal of Technology in Society*, 76(3):1-11. https://doi.org/10.1016/j.techsoc.2023.102434

Nadkarni, S. & Prugl, R. 2021. Digital Transformation: a review, synthesis and opportunities for future research. *Management Review Quarterly*, 71:233-341. https://doi.org/10.1007/s11301-020-00185-7

Nasiket, D., S. & Namdeo, G., D. 2023. Change management in higher education an overview. *International journal of emerging technologies and innovative research*, 10(9): 2349-5162. http://www.jetir.org/papers/jetir2309169.pdf

Ndaba, N., E. & Naidoo, G., M. 2024. Digital transformation challenges in higher education institutions post COVID-19. *Corporate Governance and Organizational Behavior Review*, 8(3): 54–63. https://doi.org/10.22495/cgobrv8i3p5

Negm, E. 2026. Artificial intelligence (AI) usage in higher education: technology integration into curriculums to attain UN sustainable development goals. *Journal of Applied Research in Higher Education*,18(2): 616–631. https://doi.org/10.1108/JARHE-04-2025-0275

Newlands, G. 2021. Algorithmic surveillance in the gig economy: the organization of work through Lefebvrian conceived space. *Organization Studies*, 42(5):719–737. https://doi.org/10.1177/0170840620937900

Newman, T., McGill, L. & Knight, S. 2025. How to approach digital transformation in higher education. Findings from Jisc's digital transformation research pilot. https://www.jisc.ac.uk/reports/how-to-approach-digital-transformation-in-higher-education/ Date of access: 10 Mar. 2026.

North-West University. 2024. *NWU Strategic plan taking the NWU forward- 2024 and beyond.* https://www.nwu.ac.za/sites/www.nwu.ac.za/files/files/i-governance-management/documents/NWU-Strategy-2024-and-beyond.pdf Date of access: 20 Sep. 2025.

O'Dea, X. 2023. Enhancing a sense of academic and social belongingness of Chinese direct-entry students in the post-Covid era: a UK context. *Perspectives: Policy and Practice in Higher Education*, 28(2):97–108. https://doi.org/10.1080/13603108.2024.2316462

Ojebode, A., Ojebuyi, B.R., Oladapo, O.A., & Oyedele, O.J. 2018. Mono-method research approach and scholar–policy disengagement in Nigerian communication research. In: Mutsvairo, B. (Ed.), *The Palgrave handbook of media and communication research in Africa*. Cham: Springer. pp. 369-383.

Olabiyi, O. J., Vuuren, C. J. v., Du Plessis, M., Xue, Y., & Zhu, C. 2025. Digital academic leadership in higher education institutions: A bibliometric review based on citeSpace. *Education Sciences*, 15(7): 1-23. https://doi.org/10.3390/educsci15070846

Olaitan, O., Vijayalekshmi, S. & Kumar, D. 2024. Integrating 4IR technologies into higher education in South Africa: Opportunities, challenges, and strategies. *International Journal of Learning, Teaching and Educational Research*, 23(11):157-179.

Olivier, B. 2021. A practical approach to change management. In: Martins, N. & Geldenhuys, D., eds. *Fundamentals of organisation development and change management*. Cape Town: Facet. pp. 44-76.

Olmos-Vega, F., Stalmeijer, R., Varpio, L. & Kahlke, R. 2023. A Practical guide to reflexivity in qualitative research: AMEE guide no. 149. *Medical Teacher*, 45(3):241-251. https://doi.org/10.1080/0142159X.2022.2057287

Omol, E. 2023. Organizational digital transformation: from evolution to future trends. *Digital Transformation and Society,* 3(3): 240-256. https://doi.org/10.1108/DTS-08-2023-0061

Öngel, V., Günsel, A., Çelik, G.G., Altındağ, E. & Tatlı, H.S. 2023. Digital leadership's influence on individual creativity and employee performance: a view through the generational lens. *Behavioural Science (Basel)*, 14(1), art. #3. https://doi.org/10.3390/bs14010003

Pacolli, M. 2022. Importance of change management in digital transformation sustainability. *IFAC-PapersOnLine*, 55-39:276-280. https://doi.org/10.1016/j.ifacol.2022.12.034

Park, I., Kim, D., Moon, J., Kim, S., Kang, Y., & Bae, S. 2022. Searching for new technology acceptance model under social context: analyzing the determinants of acceptance of intelligent information technology in digital transformation and implications for the requisites of digital sustainability. *Sustainability*, 14(1): 579. https://doi.org/10.3390/su14010579

Patton, M.Q. 2014. *Qualitative research & evaluation methods: integrating theory and practice*. London: Sage Publications.

Petrov, I., Samoilenko, V., Kotelnikova, I., Tomakh, V., Bocharova, N. 2023. Leadership's role in navigating sustainability and digitalisation in enterprise. *International Journal of Organisational Leadership,* 12(1):165-182. https://doi.org/10.33844/ijol.2023.60378

Phillips, J. & Klein, J. 2023. Change management: from theory to practice. *TechTrends*, 67:189-197. https://doi.org/10.1007/s11528-022-00775-0

Rahmadi, I.F. 2024. Research on digital transformation in Higher education: present concerns and future endeavours. *TechTrends*, 68(2) :647-660. https://doi.org/10.1007/s11528-024-00971-0

Rhodes University. 2023. *Strategic plan 2023-2028. https://www.ru.ac.za/media/rhodesuniversity/content/institutionalplanning/documents/Rhodes_University_IDP2023-2028_final.pdf* Date of access: 20 Sep. 2025.

Ris, K. & Puvača, M. 2024. *Digital transformation handbook*. Boca Raton: CRC Press Taylor & Francis Group.

Rodrigue, J. 2024. *Transport geography, the international encyclopedia of geography*. New York: John Wiley & Sons.

Rosida, R., Amaliah, L., Mahardika, I. & Suratno, S.2023. The process of forming knowledge: In the study of ontology, epistemology, and axiology. *International Journal for*

Educational and Vocational Studies, 5(1):13-18. https://doi.org/10.29103/ijevs.v5i1.12980

Ruël, H., Rowlands, H. & Njoku, E. 2020. Digital business strategizing: the role of leadership and organizational learning. *An International Business Journal incorporating Journal of Global Competitiveness*, 31(1):145-161. https://doi.org/10.1108/CR-11-2019-0109

Salem, H., Belagra, F. & Bouzidi, F. 2024. The effect of implementing servant leadership practices on the adoption of digital transformation for companies in the telecommunications sector. *Business Ethics and Leadership*, 8:26-42. https://doi.org/10.61093/bel.8(3).26-42.2024

Saunders, M., Lewis, P. & Thornhill, A. 2023. *Research methods for business students*. 9th ed. United Kingdom: Pearson.

Savic, D. 2020 COVID-19 and work from home: Digital transformation of the workforce. *The Grey Journal*, 12(2):101-104.

Schiuma, G., Santarsiero, F., Carlucci, D., & Jarrar, Y. 2024. Transformative leadership competencies for organisational digital transformation. *Business Horizons*, 67(4): 425-437. https://doi.org/10.1016/j.bushor.2024.04.004

Sekaran, U.A. & Bougie R. 2016. *Research methods for business*. 7th ed. West Sussex: Wiley &Sons.

Shard, Kumar, D. & Koul, S. 2024. Digital transformation in higher education: a comprehensive review of e-learning adoption. *Human Systems Management*, 43(4): 433-454. https://doi.org/10.3233/HSM-230190

Shenkoya, T., & Kim, E. 2023. Sustainability in higher education: Digital transformation of the fourth industrial revolution and its impact on open knowledge. *Sustainability*, 15(3), art. #2473. https://doi.org/10.3390/su15032473

Sholler, D. 2020. Infrastructure as an occasion for resistance: organized resistance to policy-driven information infrastructure development in the U.S. healthcare industry.

Computer Supported Cooperative Work, 29(4):451–496. https://doi.org/10.1007/s10606-020-09375-z

Singh, A. & Hess, T. 2020. *How chief digital officers promote the digital transformation of their companies*. 5th ed. New York: Routledge.

Singh, R. 2015. Current trends and challenges in South African higher education. *South African Journal of Higher Education*, 29(3):1-7. https://hdl.handle.net/10520/EJC176240

Singun, A. 2025. Unveiling the barriers to digital transformation in higher education institutions: a systematic literature review. *Discover Education*, 4(37):1-41. https://doi.org/10.1007/s44217-025-00430-9 Sithole, V. L., & Mbukanma, I. 2024. Prospects and challenges to ICT adoption in teaching and learning at rural South African universities: A Systematic Review. *Research in Social Sciences and Technology*, 9(3), 178-193. https://doi.org/10.46303/ressat.2024.54

Smith, J. 2019. *The evolution of electronic devices: a historical overview*. London: Tech Publishing.

Soto-Acosta, P. 2020. 'COVID-19 pandemic: Shifting digital transformation to a high-speed gear. *Information Systems Management*, 37(4): 260–266. https://doi.org/10.1080/10580530.2020.1814461

Stoiko, M. 2024. Navigating digital transformation: agile leadership and strategic flexibility in mid-sized manufacturing firms. *Journal of Innovation in Polytechnic Education*, 6:55-72. https://doi.org/10.69520/jipe.v6i.190

Stoumpos, A. I., Kitsios, F. & Talias, M. A. 2023. Digital transformation in healthcare: technology acceptance and its applications. *International Journal of Environmental Research and Public Health*, 20(4):3407. https://doi.org/10.3390/ijerph20043407

Tagscherer, F. & Carbon, C.-C. 2023. Leadership for successful digitalization: a literature review on companies' internal and external aspects of digitalization. *Sustainable Technology and Entrepreneurship*, 2(2), art. #100039. https://doi.org/10.1016/j.stae.2023.100039

Tang, J., Huang, P. & Yan, S. 2025. Digital transformation in higher education: logical framework, practical dilemmas, and implementation approaches. *Frontiers in Psychology,* 16, art. #1565591. https://doi.org/10.3389/fpsyg.2025.1565591

Traianou, A. & Hammersley, M. 2012. *Ethics in qualitative research: controversies and contexts*. London: SAGE publications Ltd.

Twabu, K. 2025. Transforming organisational culture in higher education: a strategic change management case study for higher learning institutions using the IRACE framework. *Frontiers in Education,* 10, art. #1690451. https://doi.org/10.3389/feduc.2025.1690451

UNESCO (United Nations Educational, Scientific and Cultural Organisation). 2022. *Higher Education Global Data Report*. /https://www.right-to-education.org/sites/right-to-education.org/files/resource-attachments/UNESCO_Higher%20Education%20Global%20Data%20Report_Working%20document_May2022_EN_0.pdf Date of access: 5 Feb. 2025.

University of Cape Town. 2025. *Strategy 2030*. https://uct.ac.za/strategy-2030 Date of access: 21 Sep. 2025.

University of the Free- State. 2023. *UFS Strategic Plan 2023-2028. Renewal and reimagination for greater impact.* *https://www.ufs.ac.za/supportservices/departments/community-engagement-home/about/strategic-plan-2023-2028* Date of access: 21 Sep. 2025.

University of Kwazulu-Natal. 2023. *UKZN strategic plan 2023-2032.* *https://ukzn.ac.za/wp-content/uploads/2023/03/UKZN-Strat-Plan-spreads.pdf* Date of access: 21 Sep. 2025.

University of Limpopo. 2024. *Strategic plan 2024-2028*. https://www.ul.ac.za/wp-content/uploads/2024/06/University-of-Limpopo-Strategic-Plan-2024-2028-final-approved-by-COUNCIL-241123-branded-3.pdf/ Date of access: 20 Sep. 2025.

University of the Witwatersrand. 2020. Wits 2033: A s*trategic framework.* *https://share.google/94uzkljaBAqLancDa* Date of access: 21 Sep. 2025.

Usmonova, S.G. 2022. The importance of themes in the works of Utkir Khoshimov. *Educational Research in Universal Sciences*, 1(6):116-118. http://erus.uz/index.php/er/article/view/458/664

Valdivia-Salazar, C., Serquén, O., Guevara, L., Bravo-Jaico, J., Alarcón R., Germán, N., Aquino, J., Maquen-Niño, G. & Moreno, H. 2025. Development and validation of an instrument to assess the maturity of digital transformation in higher education institutions. *Frontiers in education*, 10, art. #1691178. https://doi.org/10.3389/feduc.2025.1691178

Vaal University of Technology. 2020. *Strategic Plan 2020-2024. https://vut.ac.za/strategic-plan/* Date of access: 21 Sep. 2025.

Venkatesh, V., Morris, M. G., Davis, G. B. & Davis, F. D. 2003. User acceptance of information technology: toward a unified view. *Management Information Systems Quarterly*, 27(3):425–478. https://doi.org/10.2307/30036540

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N. E., & 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

Wade, M. & Shan, J. 2020. Covid-19 has accelerated digital transformation but may have made it harder not easier. *Management Information Systems Quarterly Executive*, 19(3), art. #00034. https://doi.org/10.17705/2msqe.00034

Warner, K. & 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

Walter Sisulu University. 2020. *Strategic Plan 2020-2030. https://www.wsu.ac.za/index.php/en/home/organizational-structure1/2030-strategic-plan*/ Date of access: 20 Sep. 2025.

Wolor, C.W., Nurkhin, A. & Citriadin, Y. 2021. Leadership style for millennial generation, five leadership theories, systematic literature review. *Quality - Access to Success*, 22:105-110. https://doi.org/10.47750/QAS/22.184.13

Yin, X. & Ying, C. 2025. Digital transformation of higher education: Trends, innovations models and strategic paths. Pakistan journal of life & social sciences, 23(1): 1271-1289. https://doi.org/10.57239/PJLSS-2025-23.1.00100

Yu, J. & Moon, T. 2021. Impact of digital strategic orientation on organizational performance through digital competence. *Sustainability*, 13(17), art. #9766. https://doi.org/10.3390/su13179766

Zhao, R., Xie, J., Li, R., & Yang, J. 2024. Digital transformation in higher education: Logical framework, practical dilemmas, and implementation approaches. *Frontiers in Psychology*, 15, art. #1565591.

Zhu, C. & Cheng, Z. 2025. Higher education governance and leadership in the digital era. *Education Sciences,* Special Issue.

Zhu, F., Xu, P. & Zong, J. 2023. Moore's law: the potential, limits, and breakthroughs. *Applied and Computational Engineering*, 10:307-315. https://doi.org/10.54254/2755-2721/10/20230038

ANNEXURES

Annexure A: Approval of the Study

Private Bag X1290, Potchefstroom
South Africa 2520
Tel: 018 299-1111/2222
Fax: 018 299-4910
Web: http://www.nwu.ac.za
Senate Committee for Research Ethics
Tel: 018 299-484
Feziwe.Mseleni@nwu.ac.za

5 June 2025

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the **North-West University Economic and Management Sciences Research Ethics Committee (EMS-REC)** on 30 May 2025 , the Economic and Management Sciences Research Ethics Committee hereby **approves** your study as indicated below. This implies that the North-West University Senate Committee for Research Ethics (NWU-REC) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title:	Managing the digital shift of change management strategies for higher education transformation.		
Study leader/Supervisor (Principal investigator/Researcher:	Mr J.C. Coetzee	**University no.:**	10306498
Student:	C.M. Gertse	**University no.:**	26126206
Ethics number:	N W U - 0 0 6 9 4 - 2 5 - A 4 Institution / Study number / Year / Status Status: S = Submission; R = Re-submission; P = Provisional authorisation; A = Authorisation		
Application type:	Single study - Postgraduate research	**Risk level:**	No risk
Commencement date:	6/5/25		
Expiry date:	6/5/26		
Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of the annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.			

Special in process conditions of the research for approval (if applicable):

None.

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- *The study leader/supervisor (principal investigator)/researcher must report in the prescribed format to the EMS-REC:*
  - *annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and*
  - *without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.*
- *The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the EMS-REC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.*
- *Annually a number of studies may be randomly selected for an external audit.*
- *The date of approval indicates the first date that the study may be started.*
- *In the interest of ethical responsibility, the NWU-SCRE and EMS-REC reserves the right to:*
  - *request access to any information or data at any time during the course or after completion of the study;*
  - *to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;*
  - *withdraw or postpone approval if:*
    - *any unethical principles or practices of the study are revealed or suspected;*
    - *it becomes apparent that any relevant information was withheld from the EMS-REC or that information has been false or misrepresented;*
    - *submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or*
    - *new institutional rules, national legislation or international conventions deem it necessary.*
- *EMS-REC can be contacted for further information or any report templates through the secretariat. Botlenyana Maluleka (Botlenyana.Maluleka@nwu.ac.za/ +27 18 2852436) or the chair Prof Diana Viljoen-Bezuidenhout (Diana.Viljoen@nwu.ac.za / +27 16 9103403).*

The EMS-REC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the EMS-REC or the NWU-SCRE for any further enquiries or requests for assistance.

Yours sincerely,

Prof Diana Viljoen-Bezuidenhout

Digitally signed by Prof Diana Viljoen-Bezuidenhout
Date: 2025.06.18 11:57:29 +02'00'

Prof Diana Viljoen-Bezuidenhout

Chairperson: NWU Economic and Management Sciences Research Ethics Committee

Annexure B: Language Editor

THEMBINKOSI BONGANI NGWENYA
1575 Buthelezi Street, Jabulani, KwaXuma, 1868
Cell phone: +27 62 142 3290 / +27 65 289 0108
Email: bongani.ngwenya@gmail.com / editorthemba@gmail.com

CERTIFICATE OF EDITING

The document that is titled '*Analysing documentary responses towards digitisation strategies in the higher education sector*', which was written by the following client, was thoroughly edited and proofread by the undersigned editor.

Client:	C. M. Gertse
Editor:	Thembinkosi Bongani Ngwenya
Signature:	
Date:	20/03/2026

Disclaimer: The onus was on the client to attend to the suggested changes and give clarity on sentences with unclear meanings. Hence, the editor is not responsible for the final version of the document.

Thembinkosi Ngwenya
1575 Buthelezi Street, Jabulani, KwaXuma, 1868 | Phone: +27 62 142 3290 | Fax: +27 86 517 6293

Annexure C: List of documents included in this study

Author (s)	Year	Title of publication	Journal of publication	Sources Links
Adiwijaya, Anggadwita, Gozali, Ramadhana and Purbolaksono	2025	Digital transformation in higher education: developing a new framework	Globalisation, societies and education	https://doi.org/10.1080/14767724.2025.2520952
Nasiket and Namdeo	2023	Change management in higher education an overview.	Journal of emerging technologies and innovative research	https://www.jetir.org/papers/JETIR2309169.pdf
Diaz-Garcia,	2023	Managing Digital Transformation: A	MDPI electronics	https://doi.org/10.3390/electronics12112522

Montero-Navarro, Rodriquez-Sanchez, and Gallego-Losada.		Case Study in a Higher Education Institution		
Jinga, Hussen, Negash and Estifanos	2024	Leadership behaviour and organisational change management in selected public universities of Ethiopia: Exploring the impact of leadership influences and change processes	ScienceDirect	https://doi.org/10.3390/educsci15050606

Mabasa and Maluka	2024	The complexities of higher education leadership and management in the digital era	Journal of public administration and development alternatives	https://doi.org/10.55190/JPADA.2024.335
Mhlanga, Denhere and Moloi	2024	Covid-19 and the key digital transformation lessons for HEI	MDPI education sciences	https://doi.org/10.3390/educsci12070464
North-West University	2024	NWU strategic plan, taking the NWU forward-2024 and beyond-	NWU website	https://www.nwu.ac.za/sites/www.nwu.ac.za/files/files/i-governance-management/documents/NWU-Strategy-2024-and-beyond.pdf
Rhodes University	2023-2028	Rhodes Institutional Development Plan 2023-2028	Rhodes university website	https://www.ru.ac.za/media/rhodesuniversity/content/institutionalplanning/documents/Rhodes_University_IDP2023-2028_final.pdf

Singun	2025	Unveiling the barriers to digital transformation in higher education institutions: a systematic literature review	Discover education	https://doi.org/10.1007/s44217-025-00430-9
Alejandro	2024	Approach to effective change management for university digital transformation projects	Project management and engineering	https://doi.org/10.61547/2407001
University of Cape Town	2030	Strategy 2030	UCT website	https://uct.ac.za/strategy-2030

University of KwaZulu Natal	2023-2032	UKZN strategic plan 2023-2032	UKZN website	https://ukzn.ac.za/wp-content/uploads/2023/03/UKZN-Strat-Plan-spreads.pdf
University of Limpopo	2024-2028	Strategic plan 2024-2028- Community driven, digitally enabled	UL website	https://www.ul.ac.za/wp-content/uploads/2024/06/University-of-Limpopo-Strategic-Plan-2024-2028-final-approved-by-COUNCIL-241123-branded-3.pdf
University of the Free-State	2023-2028	UFS strategic plan 2023-2028	UFS website	https://www.ufs.ac.za/supportservices/departments/community-engagement-home/about/strategic-plan-2023-2028
University of Witwatersrand	2022-2033	Wits 2033: the leading edge of the Global South	Wits website	https://share.google/94uzkljaBAqLancDa
Vaal University	2020-	Strategic Plan 2033+ Leading	VUT website	https://vut.ac.za/strategic-plan/

of Technology	2024	innovation for a digitally smart industrial transformation		
Walter Sisulu University	2020-2030	Walter Sisulu University Strategic Plan 2020-2030	WSU website	https://www.wsu.ac.za/index.php/en/home/organizational-structure1/2030-strategic-plan
Yin and Ying	2025	Digital transformation of higher education: trends, innovation models and strategic paths	ScienceDirect	https://doi.org/10.57239/PJLSS-2025-23.1.00100

Annexure D: ATLAS.ti exported quotes and codes

Document	Quotation Content	Codes
Covid-19 and the Key Digital Transformation Lessons for HEI	Means that the leadership and the rest of the community are working together to achieve a common future objective	Strategy-Collaborative approach
Covid-19 and the Key Digital Transformation Lessons for HEI	According to Alenezi [43], the framework developed by KPMG is "a research-based consumer-centric enterprise-wide framework" that can be used in the digital transformation of higher education institutions. This framework can help higher education institutions to position themselves in a better way, creating "higher value and returns" through the "structuring and aligning" of various areas of "the education system" to deliver a smooth, customer-focused service and experience. This framework is regarded as the "blueprint for digital transformation in universities with six organizational elements", as articulated in Figure 1 below.	Digital Transformation Framework-KPMG Digital Transformation Framework for HEIs
Covid-19 and the Key Digital Transformation Lessons for HEI	As shown in Figure 1 above, the digital transformation blueprint has six key elements, which include	Digital Transformation Framework-KPMG Digital Transformation Framework for HEIs

	"customers, channels, enterprise strategy, core businesses practices, advanced data and analytics, and enabling business practices	Digital Transformation Framework- KPMG Digital Transformation Framework for HEIs 6 step process
Covid-19 and the Key Digital Transformation Lessons for HEI	shown in Figure 1 above, the digital transfer	Digital Transformation Framework- Google Education Transformation Framework
Covid-19 and the Key Digital Transformation Lessons for HEI	Significant effect of the pandemic was to hasten the use of digital technologies by many areas of the global economy.	Effects- the pandemic accelerated the use of digital technologies.
Covid-19 and the Key Digital Transformation Lessons for HEI	Pandemic seriously exposed digital gaps in the education sector during COVID-19.	Digital divide- Digital gaps were exposed.
Covid-19 and the Key Digital Transformation Lessons for HEI	The pandemic, on the other hand, has brought attention to the continuance of the "digital divide," which exists both between and within countries and institutions, increasing pre-existing disparities	Digital divide- Digital gaps were exposed.
Covid-19 and the Key Digital Transformation Lessons for HEI	As a result of the age divide between students and technology-adopted professor	The age divides also played a role in technology adoption
Covid-19 and the Key Digital Transformation Lessons for HEI	Again, one aspect that should be considered for the successful use of digital technologies in higher	Age divide in digital adoption plays an important role

	education is the age divide between students who are deemed native to these tools and university faculties and departments that must adapt and learn how to utilize them	
Covid-19 and the Key Digital Transformation Lessons for HEI	The pandemic also highlighted the inequality in South Africa. The difficulties with online learning exposed inequities in higher education and revealed that South Africa may not be ready for the fourth industrial revolution [52,53]. This pandemic demonstrates Educ. Sci. 2022, 12, 464 12 of 17 that South Africa is unprepared for the fourth industrial revolution (4IR) if some people are left behind because of its implementation.	Inequality challenges- Disrupts implementation of digital technologies
Covid-19 and the Key Digital Transformation Lessons for HEI	Some universities were able to incorporate online learning with little difficulty. For example, the University of Johannesburg had been incorporating technology into learning even before COVID-19, making the transition to online learning simpler for them	UJ is an example of early adopter digital tools which made it easier
Covid-19 and the Key Digital Transformation Lessons for HEI	Other rural universities, on the other hand, found it difficult to integrate	Digital divide- Rural Universities

	online learning due to resource and skill constraints, and they were unable to catch up with other universities, resulting in widespread educational inequity [55,56]. As a result, the pandemic's effects worsened inequality, necessitating increased assistance to the most vulnerable.	
Covid-19 and the Key Digital Transformation Lessons for HEI	professionals should have digital competency	Strategy- Digital Competency
Covid-19 and the Key Digital Transformation Lessons for HEI	Tomczyk [62] indicates that there is no clear, comprehensive coordinated approach to digital transformation in higher education in South Africa. One part of the pandemic that was revealing was that universities in South Africa are not on the same level when it comes to the utilization of digital technology. In the process of transferring teaching and learning online, each university had its own strategy	HEIs in SA lacks comprehensive coordinated approach to digital transformation
Covid-19 and the Key Digital Transformation Lessons for HEI	As a result, successful higher education institutions should encourage their employees to	Strategy-Encourage employees to promote digital maturity vision

	promote digital maturity vision	
Covid-19 and the Key Digital Transformation Lessons for HEI	It is also worth noting that technology is not just a tool for school reform; it is a critical component [43]. As a result, "leadership must identify, test, and gain support from their team for the use of appropriate technology tools and procedures to achieve the institution's academic and administrative objectives.	Strategy- Leadership and Team Collaboration
Covid-19 and the Key Digital Transformation Lessons for HEI	Finally, the framework advises that educators obtain effective professional development and ongoing coaching to enable them to employ skills and approaches to fulfil the needs of their pupils	Strategy- CPD
Covid-19 and the Key Digital Transformation Lessons for HEI	The main takeaway is that there is a lack of consistency across universities and that the reaction to COVID-19 was not led by a national government; rather, it was led by a variety of stakeholders, sometimes in a fragmented manner that did not target all learners	Challenge-Lack of integration and coordinated Strategy
Covid-19 and the Key Digital Transformation Lessons for HEI	Educators must learn how to integrate technology into their	Strategy-Digital Skills and Competencies

	lectures and how to serve students with a variety of needs. • Educators and instructors must recognize the importance of information and communication technology (ICT) in educational policy, curriculum, assessment, and the organization and administration of education.	
Covid-19 and the Key Digital Transformation Lessons for HEI	All types of communication channels, including in-person, email, telephone, mobile applications, and social media, are considered channels	Strategy-Effective Communication is Significant
Unveiling the barriers to digital transformation in higher education	DT entails significant shifts in culture, workforce dynamics, and technology that facilitate the implementation of innovative educational and operational frameworks, influencing an institution's operations, strategic objectives, and value proposition	Cultural and workforce shifts highlighting challenges in adapting to new operational and educational paradigms
Unveiling the barriers to digital transformation in higher education	Unlike a single initiative, DT is an ongoing journey that drives increasingly significant organizational changes over time	Ongoing journey and phased approach indicating different institutional readiness and adaptation stages.

Unveiling the barriers to digital transformation in higher education	Frequently confused with digitization and digitalization, Brooks & McCormack [8] clarify that DT is a distinct and multifaceted process that consists of different pathways and phases, as depicted in Fig. 1.	Phases of DT (digitization → digitalization → transformation) as conceptual frameworks for understanding change
Unveiling the barriers to digital transformation in higher education	foremost barriers identified through coding mechanisms that comprise (i) limited ICT infrastructure, (ii) deficiency in digital literacy skills, (iii) abilities and competence, (iv) inconsistent strategies and reference models concerning digital vision, and (v) a culture that is averse to change	Foremost barriers to DT
Unveiling the barriers to digital transformation in higher education	Lack of stakeholder engagement in developing digital vision A study by [13] highlights a troubling lack of clarity from institutional management regarding DT goals, suggesting a chaotic and unfocused approach to these essential initiatives. There seems to be no cohesive vision that clearly outlines the benefits of DT, leaving students, faculty, and staff feeling excluded and unheard. This absence of collaboration only	stakeholder awareness gap

	undermines effort, as successful transformation relies on the active involvement of the entire community [9]. Moreover, without the input of key stakeholders at the planning stage—gathering feedback through surveys, focus groups, and town hall meetings—the process risks losing momentum and support [6]. Additionally, treating	
Unveiling the barriers to digital transformation in higher education	The often-ambiguous institutional policies related to DT goals suggest that many HEIs lack a comprehensive understanding of how to effectively implement such transformations.	Institutional policies related to DT goals are often unclear and inconsistently interpreted.
Unveiling the barriers to digital transformation in higher education	The absence of clear direction among senior management permeates the entire institution, affecting both academic and administrative staff and leading to uncertainty regarding DT goal	Challenge- Unclear direction from leadership leads to uncertainty
Unveiling the barriers to digital transformation in higher education	Furthermore, the autonomy of different faculties could impede the overall implementation process [9]	Decentralised faculty autonomy can hinder unified implementation

Unveiling the barriers to digital transformation in higher education	The inflexible framework of HEIs poses challenges for achieving successful DT, as various departments frequently have divergent priorities and objectives, resulting in confusion and ineffective strategies	Conflicting departmental goals causes fragmentation and ineffective digital strategies
Unveiling the barriers to digital transformation in higher education	While having a clear digital strategy might sound good in theory, the reality is that many HEIs struggle to keep up with the rapidly changing educational landscape, leaving their digital initiatives misaligned and ineffective	Rapid changes in education landscape outpace institutional digital strategy execution
Unveiling the barriers to digital transformation in higher education	The process of DT in HEIs has evolved into a complex and challenging endeavor, as numerous institutions struggle to establish a coherent vision for their transformation efforts [12]. This lack of direction leads to confusion about what needs to be achieved and hampers the effectiveness of various initiatives [13]. Many HEIs seem unaware of the disruptive effects of digital innovations and lack meaningful plans or policies to adapt, leaving them struggling to maintain relevance in today's digital	Absence of a comprehensive digital vision

	world [9]. To move forward, these institutions need strong leadership to develop a strategic vision that includes the whole academic community, not just IT departments. Without a solid plan, including governance structures and an assessment of current technologies, efforts at DT will be disjointed and ineffective [6]. Recent research highlights that many public HEIs have not even begun independent planning for their digital future, further emphasizing the urgency and necessity of a more coordinated approach [7].	
Unveiling the barriers to digital transformation in higher education	Internal policies and governance issues make this situation worse, as DT is complicated and affects all aspects of higher education.	Weak internal policies and governance structures
Unveiling the barriers to digital transformation in higher education	Many HEIs focus on immediate problems instead of addressing important long-term goals, which results in avoiding the tough challenges that require time and hard work.	Prioritization of Quick Fixes Over Sustainable Solutions

Unveiling the barriers to digital transformation in higher education	While there is a need for a solid reference model	Absence of Comprehensive models for DT
Unveiling the barriers to digital transformation in higher education	A DT maturity assessment could help them understand their strengths and weaknesses, but it is clear that many studies do not address the bigger picture	Lack of holistic Assessment Tools (e.g., DT maturity models)
Unveiling the barriers to digital transformation in higher education	Ineffective leadership constitutes a significant barrier to successful DT within HEIs, necessitating strategic adaptations to address inherent cultural and behavioral shift	Challenge-Leadership ineffectiveness
Unveiling the barriers to digital transformation in higher education	deficiencies in leadership skills or vision may incite resistance from faculty and staff and lead to suboptimal resource allocation for transformation initiatives	Challenge-Leadership ineffectiveness leads to change resistance
Unveiling the barriers to digital transformation in higher education	prevalent leadership weaknesses exacerbate advancement barriers, often due to leaders' inadequate ability to navigate transformative challenge	Challenge-Leadership ineffectiveness
Managing Digital Transformation A case study of Higher Education	of awareness requires	Awareness is important- Element of ADKAR
Managing Digital Transformation A case study of Higher Education	The cultural change of the institution was initiated within its strategic plan	Strategy- Embedded Cultural Change

	for 2015– 2020, based on five values: diversity, excellence, service to stakeholders, co-responsibility, and novelty, on which the process is built.	
Managing Digital Transformation A case study of Higher Education	Therefore, continuous training is necessary to ensure that employees are kept up to date and can be part of the organisation's transformation process	Challenge and Strategy-CDP as a Change Strategy
Managing Digital Transformation A case study of Higher Education	Digitalisation is necessary to implement a data-driven management model.	Strategy- Digitalisation as an enabler for Strategic Goals
Managing Digital Transformation A case study of Higher Education	The implementation of this process requires time to deploy the right systems to obtain the information required for decision-making. The head of the DT department stated that: "Any process of implementing new data technologies is complex and takes time, as HEIs are complex organisations that sometimes use different systems to solve each need".	Challenge- Systems integration
Managing Digital Transformation A case study of Higher Education	This transformation requires investing in the development of appropriate new digital skills and	Strategy- Investing in digital skills and competencies

	competencies	
Managing Digital Transformation A case study of Higher Education	A member of the careers department shared his view on this: "The organisation's orientation towards caring for people, having a good working climate and new ways of leading that facilitate equality, which is usually required by the new generations, favours talent retention and facilitates the transformation of the organisation	Institutional Factor- Supportive Culture and Leadership as Transformation Enablers
Managing Digital Transformation A case study of Higher Education	the development of new learning processes, proper internal and external communication, the establishment of adequate data collection systems to facilitate decision-making, and participative leadership oriented towards the management of the new professional profiles are the main factors influencing the DT process in HEI	Strategy-Holistic Pillars of Successful Digital Transformation
Managing Digital Transformation A case study of Higher Education	Therefore, one of the biggest challenges for organisations is the need to provide themselves with this type of talent by training and retaining their employees, as well	Strategy- Talent training and employee retention

	as recruiting new one	
Leadership Behaviour and organisational change management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	Existing literature has highlighted the significant impact of leadership on the successful management of organizational change [3]. In supporting this thought, other studies have shown that leadership is a crucial component for a successful transition in any organization, including higher education institutions [4]. Furthermore, some other studies revealed that organizational change relies increasingly on leadership behavior helps to sustain and enhance organizational competitiveness [5,6] When examining the impact of leadership behavior on organizational change management. The success of organizational change is therefore dependent on the efficiency of organizational leaders, as leadership and organizational change are mutually dependent and connected.	Institutional- Foundational Role of Leadership in Change Management
Leadership Behaviour and organisational change	Leadership and Vision: Effective leadership involves setting a clear	Strategy- Leadership strategic approach to CM

management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	vision for change, inspiring others, and providing guidance throughout the process. In addition, Leaders should articulate the reasons behind the change and create a sense of urgency and purpose. Stakeholder Engagement: studies remarked that engaging stakeholders is crucial as they play a significant role in the success and sustainability of change efforts in higher education institutions. This includes involving faculty, staff, administrators, students, and external partners in the decision-making process, seeking their input, and addressing their concerns. Communication and Transparency: As Kotter indicated open and transparent communication is essential for managing change effectively. Clear and frequent communication helps stakeholders understand the need for change, the expected outcomes, and their role in the process. It is important to use various communication channels and tailor messages to different audiences [34]. Change Planning and Implementation: Developing a	

	comprehensive change plan is critical. This involves defining clear goals, establishing timelines, allocating necessary resources, and identifying strategies for implementation. It is important to break down the change into manageable phases and involve key stakeholders in the planning process Training and Support: Change often requires individuals to acquire new skills, adopt new technologies, or modify their behaviors. Providing training programs, professional development opportunities, and ongoing support helps stakeholders navigate the change process, build their capabilities, and overcome resistance Evaluation & Continuous Improvement: Evaluating the effectiveness of the change initiative is important to gauge progress and identify areas for improvement. Collecting feedback, analyzing data, and making adjustments based on the findings ensure that the change efforts align with the desired	

	outcomes	
Leadership Behaviour and organisational change management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	Similarly, the qualitative data results highlight the importance of training to support the change management process. During Key informants' interview one of participant expressed "frustration when changes are expected to be implemented without the necessary resources and support from the institution''	Strategy- Upskilling is Important
Leadership Behaviour and organisational change management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	During focus group discussion fourth year business management student and Student representatives in wolaita soddo university expressed "about the absence of a cohesive, institution-wide approach to change management'	The absence of a cohesive, institution-wide approach to change management
Leadership Behaviour and organisational change management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	The present study result indicates that leaders are not effectively providing support to staff in changing management process in selected public Universities of Ethiopia	Lack of support from leaders to staff in the change management process in selected public universities
Leadership Behaviour and organisational change management in selected public	Therefore, the study finding suggests the need for university leaders to provide support for their	Leaders need to provide support to staff during change

universities of Ethiopia. Exploring the impact of leadership influences and change processes	staff in the change management process.	
Leadership Behaviour and organisational change management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	Similarly, some other scholars noticed that approaching change in an open & consultative manner assists in more effective implementation	Strategy-Open and consultative approach to CM
Leadership Behaviour and organisational change management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	Effective communication engages the hearts and minds of all stakeholders by facilitating movement along the various levels of development [76]. This finding emphasizes the need for leaders' successful communication with employees in the change process to overcome the barriers.	Strategy-Effective Communication is Significant
Leadership Behaviour and organisational change management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	Furthermore, the finding indicates that leaders who exhibit autocratic leadership behaviors, such as the speedy decision-making processes, quick up the change process, and allowing one person to take charge of the change to guarantee a uniform approach are more likely to facilitate successful change	Lewin's Change Model

	management in public Universities.	
Leadership Behaviour and organisational change management in selected public universities of Ethiopia. Exploring the impact of leadership influences and change processes	What is more, the result of the study reveals that leaders, who exhibit democratic leadership behaviors, such as listening to employees' ideas and concerns thus learning how to keep the spirit of the employees high, are more likely to facilitate successful change management in public universities. This finding highlights the importance of democratic leadership in driving and sustaining organizational change in the Ethiopian higher education context. It is in line with studies revealed that democratic leadership behavior is positively aligned with change practices within the organizations	Kotter's Model
Digital transformation in higher education developing a new framework	Digital readiness refers to the degree to which an organisation's employees are prepared for technological transformation or the adoption of digital solutions. It encompasses behavioural competence, cognitive skills, and digital proficiency, enabling employees to adapt to and manage	Digital readiness refers to the degree to which an organisation's employ

	the digital transformation process	
Digital transformation in higher education developing a new framework	The pace of digital transformation in higher education lags behind broader societal changes. Universities face considerable challenges in achieving these goals due to contextual limitations in political, social, and economic aspects	Contextual issues lead to digital initiatives lagging
Digital transformation in higher education developing a new framework	Digital transformation is a lengthy process that occurs in various stages, necessitating substantial resources, strong institutional support, and well-developed policy frameworks	Digital transformation is a lengthy process that occurs in various s
Digital transformation in higher education developing a new framework	Higher education institutions face significant challenges in implementing digital transformation, including reliance on conventional teaching methods, limited governance adaptability, bureaucratic inertia, and academic community resistance to change	Challenge- Institutional Inertia as a change Barrier
Digital transformation in higher education developing a new framework	These challenges are exacerbated by a lack of strategic vision, inadequate digital leadership, and limited investment in digital	Challenge- Compounding deficits in Strategic Enablers

	infrastructure and competencies (Selwyn 2014)	
Digital transformation in higher education developing a new framework	a digital readiness framework designed for the higher education context and implementing it for measurement purposes.	Strategy-Comprehensive Readiness Framework
Digital transformation in higher education developing a new framework	digital leadership	
Digital transformation in higher education developing a new framework	Initially, six dimensions were identified: digital infrastructure, digital education, digital culture and leadership, research and community service, digital governance and support, and digitisation readiness	Strategy- Dimensions of digital transformation readiness
Approach-to-Effective Change-Management-for-University-Digital-Transformation-Projects	Visionary leadership and effective communication are essential to underscore the importance of digital transformation and its benefits	Visionary leadership and effective communication are essential to underscore the importance of digital transformation and its benefits
Approach-to-Effective Change-Management-for-University-Digital-Transformation-Projects	Applying these theories to the university context suggests adopting participatory approaches that involve all stakeholders in the change process. This involvement in organizational transformation is considered by Errida & Lotfi (2021)	Change management should involve a participatory approach

	as a key success factor, thereby promoting an innovative and open collaboration culture.	
Approach-to-Effective Change-Management-for-University-Digital-Transformation-Projects	Therefore, selecting effective implementation strategies and understanding proven change management models, such as those of Kotter	Kotter's Change Management Model
Approach-to-Effective Change-Management-for-University-Digital-Transformation-Projects	Potential Indicators for Measuring Change Management Effectiveness	Key Performance Indicators for Measuring Change Management effectives
Change Management in Higher Education an Overview	Many universities and affiliated colleges have poor infrastructural facilities and face severe shortage of qualified teachers	Challenge- Some universities have poor infrastructure
Change Management in Higher Education an Overview	Top strategies to implement change	Various strategies to implement change
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	This development plays a key role in promoting inclusivity, reducing educational inequality, and ensuring that quality education is within reach for a broader population.	Digital Divide & Inclusion
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	The integration of digital technologies in higher education has significantly increased the accessibility and distribution of high-	Digital Divide & Inclusion

	quality educational resources, addressing long-standing disparities in resource allocation	
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	transformation of higher education is not just a simple application of technological tools, it involves a comprehensive update of teaching content, teaching methods, teacher-student relationships, and management models.	Comprehensive change management beyond just technology integration
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	Stanford University's development of a "user-friendly" smart campus integrates IoT with AI to enhance the overall learning experience	IoT with AI to enhance the overall learning experience
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	With the acceleration of digital transformation of higher education, intelligent governance system has become an important tool for improving management efficiency and optimizing decision-making.	Intelligent governance and adaptive management
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	For example, Wuhan University of Technology has enabled students to practice in a virtual environment that is highly consistent with industry needs through the construction of virtual scenes of "unmanned factories" and	Digital Teacher Action Plan, National Smart Education Platform Nagaoka University: Virtual campus using VR, AR, XR for remote collaboration PrismsVR: Immersive learning improving STEM education

	"automated ports". This industry-university-research integration education model not only improves students' practical ability but also promotes the close connection between higher education course content and industrial development, providing students with a more realistic and practical educational experience.	outcomes Stanford University: Smart campus with IoT and AI to improve learning experiences Wuhan University of Technology: Virtual industry-linked education and AI-driven governance
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	The government and schools should increase investment in information technology infrastructure, improve network construction and equipment updates, especially in remote areas and economically weak areas, to ensure that every student has equal access to digital education resources.	Infrastructure gaps
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	digital teaching through training and project support. It is necessary to strengthen teachers' ability to use technology and digital teaching design, promote their in-depth understanding and application of new technologies and tools, and improve teaching quality and	Offering digital skills training

	efficiency.	
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	In addition, the issue of educational equity is still a difficult problem that needs to be solved in the process of digital transformation, especially how to ensure equal educational opportunities for students in remote areas and low-income families	Digital Divide & Inclusion
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	.4 Establishing ethical and security standards: ensuring responsible transformation	.4 Establishing ethical and security standards: ensuring responsible t
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	Improving digital literacy and skills: promoting faculty and student development	Improving digital literacy and skills: promoting faculty and student d
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	Upgrading infrastructure: building a digital foundation	Upgrading infrastructure: building a digital foundation
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	Governance modernization: advancing decision making with data	Governance modernization: advancing decision making with data
Digital Transformation of Higher Education: Trends, Innovation Models and Strategic Paths	The deep transformation of digital technology has not only affected the way education is provided, but also promoted changes in education	Challenge- various aspects are affected by digital transformation and not education

	policies, curriculum design, and evaluation mechanisms.	
The complexities of Higher Education Leadership and management in the digital Era	Complexity Leadership Theory (CLT) formed bases of the study	CM Model- Complexity Leadership Theory
The complexities of Higher Education Leadership and management in the digital Era	In the South African context, digitalization presented several challenges over the years. For example, the challenge of inequality, inadequate funding, the challenge of exclusion, inadequate skills, and absence of clear, integrative national strategy. infrastructure and connectivity issues in South Africa.	Challenge- Various challenges present given South Africa's Landscape
The complexities of Higher Education Leadership and management in the digital Era	Thus, currently, in South Africa, there is a significant disparity in digital infrastructure between urban and rural areas. Institutions in rural or less developed regions (such as, University of Venda & University of Limpopo) often face challenges like unreliable internet access and insufficient digital resources.	Challenge-Digital Infrastructure Gaps, especially in less developed areas
The complexities of Higher Education Leadership and management in the digital Era	Furthermore, many rural institutions may struggle with outdated or inadequate hardware, such as computers and servers, which can	Challenge- Legacy systems

	hinder the implementation of modern digital tools and platforms (Reisdorf, Triwibowo & Yankelevich, 2020). This can affect both teaching and learning processes.	
The complexities of Higher Education Leadership and management in the digital Era	This article argues that another complexity that is presented by the digital era is institutional financial constraints.	Challenge-Financial Constraints
The complexities of Higher Education Leadership and management in the digital Era	Because of digital transformation, more than ever, leadership and management play a crucial role in creating the ideal cultural climate	Strategy-Leadership plays a crucial role in creating the ideal cultural climate
The complexities of Higher Education Leadership and management in the digital Era	This is the same in higher education, leadership and management should have transformation leadership skills to drive institutions to greater heights. Thus, effective leadership is essential to any organisation's success.	Transformational leadership is required
The complexities of Higher Education Leadership and management in the digital Era	Understanding how employees will respond to a planned organizational change is a critical concern for many organizations. Resistance to change has the potential to	Challenge-Resistance to change could lead to other negative factors

	seriously impede the transition process and has been linked to unfavourable results like lower productivity, psychological well-being and satisfaction as well as higher rates of theft, absenteeism and turnover	
NWU-Strategy-2024-and-beyond	of effective leader communication,	Strategy-Effective Communication is Significant
NWU-Strategy-2024-and-beyond	This strategy is a culmination of a rigorous and extensive process that involved robust discussions and input by internal and external stakeholders	Strategy-Collaborative approach
NWU-Strategy-2024-and-beyond	The success of these projects will lie in a well-thought-out prioritisation approach. The NWU has opted to utilise the prioritisation framework of the three strategies in which the projects are spread out over the strategy cy	Prioritisation approach to success
NWU-Strategy-2024-and-beyond	Upskilling is part of the future. However, companies also need to rethink their jobs: redesign the workflow, combine some positions, add others, and probably eliminate some.	Strategy-Upskilling is part of the future

Rhodes_University_IDP2023-2028_final	We ensured that this process would be inclusive, consultative, transparent and institution-wide and would entail a deep reflection on our past and present position and a re-imagination of the future of our university	Consultative approach involving various stakeholders
Rhodes_University_IDP2023-2028_final	We have embedded five cross-cutting themes that serve as a leitmotif throughout our IDP (Umkhombandlela). These are sustainability, quality, impact, equity and transformation, and digital transformation and innovation.	Digital Transformation and innovation are embedded as one of five cross cutting themes
Rhodes_University_IDP2023-2028_final	he recent experience with the COVID-19 pandemic has underscored the importance and value of harnessing digital technology to support, facilitate and improve student learning and ensuring the business continuity of the University	DT to improve student learning and ensure business continuity
Rhodes_University_IDP2023-2028_final	Liability of maintenance of ageing infrastructure	Challenge- Ageing infrastructure
Rhodes_University_IDP2023-2028_final	Limited financial resources,	Challenge-Financial Constraints

Rhodes_University_IDP2023-2028_final	courageous and ethical leaders; an	Ethical leadership is important
uct-strategy-2030	Creating a culture of adherence, accountability, and agility throughout UCT. (G in ESG)	
uct-strategy-2030	Our missions speak to UCT's evolution over the last nearly 200 years (since 1829), and they articulate our approach and commitment towards achieving our purpose. They demonstrate how we have transformed as a university to meet the needs of each new era we found ourselves in. Not only that, but they also build on our strengths and what we are known to do with excellence. As shared three missions have defined our success, enabled our sustainability and built our global reputation over the last 196 years, these missions are our:	Values based framework and systems thinking to drive organisational change
uct-strategy-2030	Investing in People and improving our Culture and Societal impact 4. Enhancing all Stakeholders.	Upskilling and Culture improvement for change
UFS-Strategic-Plan-2023-to-2028_Final	By 2028, we will aspire to advance an institutional culture and climate that encourages robust	Culture of Stakeholder engagement

	engagement.	
UFS-Strategic-Plan-2023-to-2028_Final	The previous strategy period also placed a strong emphasis on the Integrated Transformation Plan with its focus on systems and processes.	Integrated Transformation Plan serves as a vehicle for institutional change
UFS-Strategic-Plan-2023-to-2028_Final	Digitisation of information and tools for rapid, devolved, evidence-based decision-making.	Digitisation is seen as a tool to serve the mission
UFS-Strategic-Plan-2023-to-2028_Final	Evidence-based decision-making has been hampered in the past five years by incomplete and at times disconnected information on finance, staffing, students, learning spaces, and infrastructure. Information systems will be engineered for completeness, integrity, and accuracy, and will be made accessible for the purpose of evidence-based decision-making through business intelligence tools. These tools will allow all decision-making to be informed by data and analytics.	Digital tools to make data driven decisions
UFS-Strategic-Plan-2023-to-2028_Final	Furthermore, resistance to change and to a realignment of the UFS towards the academic project will prevent the University from	Resistance to change as a barrier

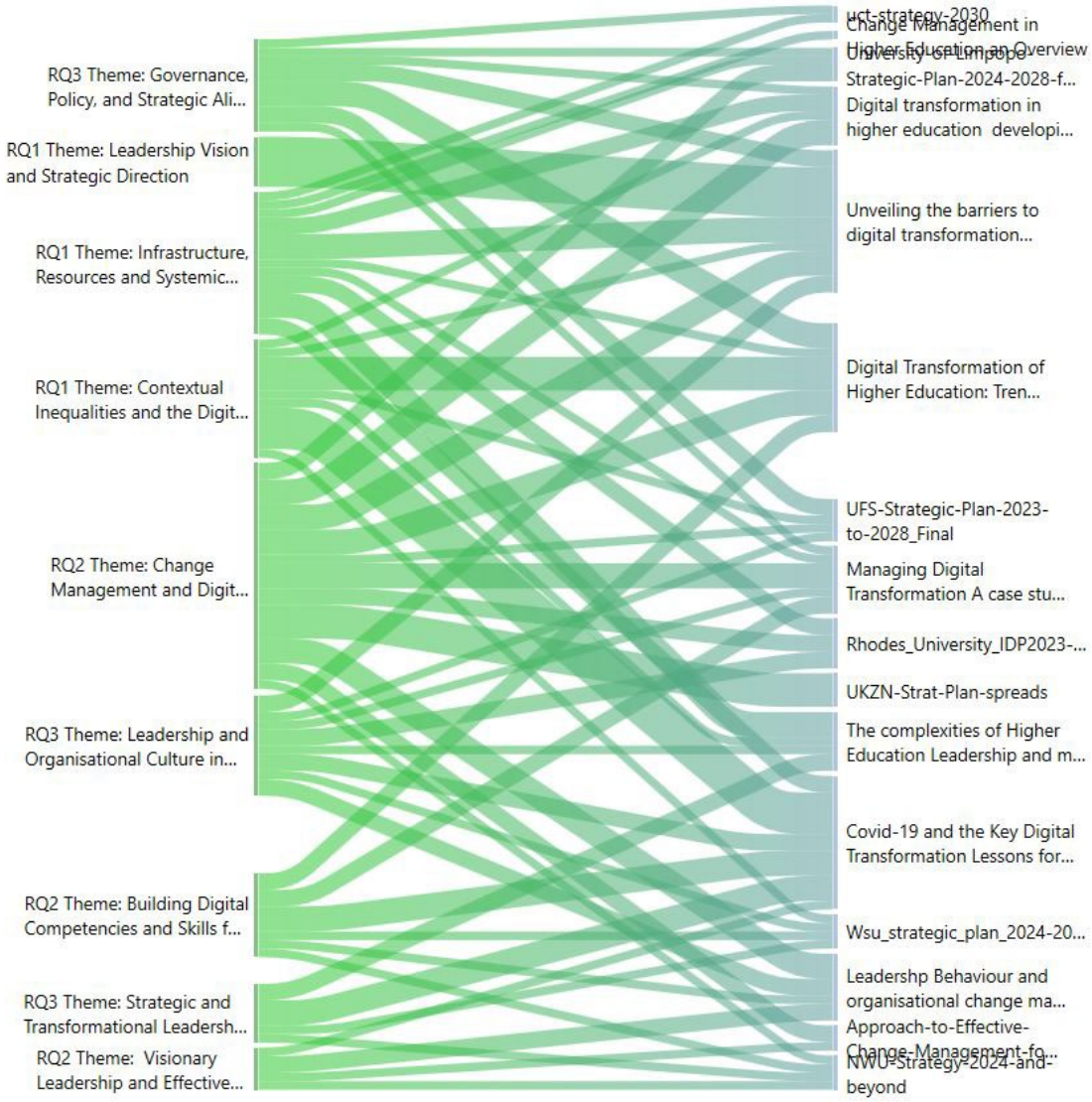
	optimising its resources for future returns and strategic investment.	
UKZN-Strat-Plan-spreads	The move towards digitalisation of our academic offerings.	Digitilisation of academic offerings
UKZN-Strat-Plan-spreads	Leveraging online learning to mitigate adverse effects of unforeseen emergencies such as COVID-19	Online learning as mitigation strategy
UKZN-Strat-Plan-spreads	has been developed through a highly consultative and participatory process.	Participatory approach to strategy development
UKZN-Strat-Plan-spreads	This Strategic Plan assumes that classroom teaching and campus life will remain core to UKZN but will require digital extension and enhancement.	Classrooms digital extension
UKZN-Strat-Plan-spreads	Key to this strategic approach is the strength of partnerships and the degree of entrenchment in local communities, the public sector, as well as in industry and corporate partners	Strengthening partnership with various stakeholders and industry partners
University-of-Limpopo-Strategic-Plan-2024-2028-final-approved-by-COUNCIL-241123-branded-3	Digital transformation of systems and process optimization to improve student services, student	Digitally enabled environment

	experience and administrative efficiencies thus creating a digitally enabled academic and corporate environment.	
University-of-Limpopo-Strategic-Plan-2024-2028-final-approved-by-COUNCIL-241123-branded-3	In 2023, UL developed a digital transformation strategy to support and digitally enable its eight strategic goals whilst improving the overall student experience.	Digital Transformation Strategy
University-of-Limpopo-Strategic-Plan-2024-2028-final-approved-by-COUNCIL-241123-branded-3	While the University of Limpopo has made significant strides in integrating technology into its operations, there remain areas where legacy systems, fragmented data, and manual processes hinder efficiency and optimal outcomes.	Challenge- Legacy systems and Fragmented Data
University-of-Limpopo-Strategic-Plan-2024-2028-final-approved-by-COUNCIL-241123-branded-3	The strategy provides UL with the opportunity to transform into an intelligent university by investing in the hosting of systems and support to a data and analytics-driven and flexible cloud platform that can integrate and scale across the institution to help facilitate the shared service environment.	DT to support data driven decision making
Wsu_strategic_plan_2024-2030	Like all the other South Africa universities in the higher education	financial sustainability in a struggling global economy,

	sector, WSU has to manage the challenges relating to digital transformation required in the Fourth Industrial revolution(4IR), financial sustainability in a struggling global economy,	
Wsu_strategic_plan_2024-2030	Adopting technology for blended teaching and learning, both for face-to-face and remote learning, will enable WSU not only to address the challenges listed above but will also enable the University to respond to disruptions to the University's business model.	WSU-Blended teaching and Learning
Wsu_strategic_plan_2024-2030	Further attention will be aimed at ensuring that the University support staff are equipped with the skills and expertise necessary for 4IR and this shall be done by ensuring more resources are provided towards the training and development of employees.	Strategy-Training and Development of Skills for the 4IR
Wsu_strategic_plan_2024-2030	This will be accomplished through cultivating a high-performance culture inside the University, ensuring that staff members feel involved and motivated, and leadership is equipped to handle the	High Performance Culture is important

	challenges facing the institution	
Wsu_strategic_plan_2024-2030	It underscores the imperative of forging change rather than merely responding to it, harnessing the power of technology, rather than being 'driven' by it, and collapsing the binary of problem-posing and solution-seeking in the quest for sustainable and just solutions to society's challenges.	Strategy- Proactive Strategic Change Leadership

Annexure E: Sankey Diagram



Annexure F: Word Cloud

Annexure G: Tree Map