The impact of digital leadership and transformational leadership on digital transformation

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ABSTRACT

This study aimed to understand the impact of transformational leadership, and digital leadership on digital transformation journeys with three key objectives, i.e., digital and transformational leadership are positive contributors to delivering digital transformation journeys but digital leadership is a more positive contributor to digital transformation journeys when compared to transformational leadership.

A quantitative research approach was taken and online surveys were used to collect data from individuals in three identified organisations who have been part of digital journeys/projects within their organisations' departments. A total of 272 responses were received, of which 174 were noted as usable for this study due to missing values on responses not used. Reliability and validity, Descriptive, T-Test, Correlation, and Regression tests were used to analyse the data.

Based on the tests performed the first outcome was aligned to the literature reviewed and confirmed a positive relationship between digital leadership and digital transformation journeys. The conclusion on the second objective was not aligned to the literature reviewed and found that a negative relationship between transformational leadership and digital transformation. The final objective confirmed that digital leadership has a more significant impact on digital transformation journeys than transformational leadership.

While the conclusion may seem clear that digital leadership is a better fit for achieving successful outcomes in digital transformation journeys, the contrary outcomes to existing literature and studies implore the need for further exploration and understanding of leadership traits, styles and attributes that are best suited to supporting the positive outcome of digital transformation journeys.

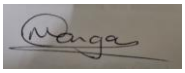
The outcome of such studies may be the creation and recognition of new leadership category, or the consolidation of existing leadership theories. Either way, it is imperative to gain a clearer insight into the leadership impacts on digital transformations if organisations and society are to gain more significant benefits from Industry 4.0 faster.

KEYWORDS

digital transformation, digital leadership, transformational leadership, leadership, digital leaders.

DECLARATION

I, Meera Manga, declare that this research report is my own work except as indicated in the references and acknowledgements. The report is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name: Meera G Manga Signature: 

Signed at Johannesburg

On the 27th day of February 2024.

ACKNOWLEDGEMENTS

Learning 2.0

Adapted from Cheryl Capazzoli

The more I search, the more I find,

The more I find, the more I read,

The more I read, the more I think,

The more I think, the more I learn,

The more I learn, the more I do,

The more I do, the more I create,

The more I create, the more I share,

The more I share, the more I collaborate,

The more I collaborate, the more I communicate,

The more I communicate, the more I connect,

The more I connect, the more I learn, the more I need to know more,

And the more I yearn to grow ever much more.

The yearning and need to grow and be more are a never-ending journey. I am eternally grateful to every soul I have encountered on my journey thus far. Every soul who has contributed, shared, engaged, and helped me become more.

My parents, sibling and family, friends and soul mates are too many to mention by name. My gratitude and appreciation for your contribution to my life and through this specific learning journey of learning is indescribable. Your patience and encouragement are imbibed in these pages.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1. INTRODUCTION

1.1 Purpose of the study

The study aimed to understand the impact of leadership styles, specifically transformational leadership, and digital leadership on digital transformation journeys. Data was collected using online surveys from individuals in three identified organisations who have been part of digital journeys/projects within their departments. The data was analysed in support of the quantitative research approach taken.

1.2 Context of the study

The fourth industrial revolution and the dawn of the digital age have changed almost every aspect of life and will continue doing so at what is often seen as a rapid pace.

Balancing the constant, fast paced change with economic conditions and the cost versus revenue conundrum is an artform that today's leaders are expected to excel at juggling. Organisations are envisioned to continually transform their business models, operations and product offerings as costs are always under pressure and revenues are continually being challenged. One way to minimise these costs and enhance revenue streams is to look for digital solutions to current day challenges.

The article published by MIT Sloan (Eastwood (2021)), confirmed that companies with digitally savvy executive teams outperform their competitors. Revenue growth from these companies was noted as 48% higher and net margins were 15% higher in companies where the leaders understand the impact that emerging technologies will have on the success of their organisations.

Many companies and institutions seek ways to morph their businesses into this new age successfully. The key to the journey ahead lies in the hands of

the leaders forging this journey to help their organisations make a successful transition towards becoming digitally led and digitally based businesses.

The success rates of digital transformation initiatives are often lower than expected by its initiators (Weber, Büttgen and Bartsch 2022). While there may be several reasons explaining the success rates, leadership has been noted as a critical element to the success of digital transformation (Sow and Aborbie, 2018).

Leadership occupies two spheres within research circles. One is that leadership is an information processing, relational or transactional activity, while the other view is that it is a behaviour or trait. Northouse (2019) defines leadership as a process where an individual can influence a group of individuals to achieve a common goal which in the context of this research should be the successful implementation of a digital transformation journey.

According to Borowska (2019), there is a strong relationship between technology and human agents that is influenced by technology software and or hardware and further impacted by the experiences or motivation of individuals within the context of usage, design, social relations, and resource allocation. To manage this conundrum, organisations require specific leadership to ensure successful use of digitalisation within an organisation.

Research studies on the precise impact of leadership styles are limited given that digital transformation is seen as an emerging trend, and the maturity adoption rates are still low as most established entities are only commencing on their digital transformation journeys.

1.3 Research problem

Many companies and institutions seek for ways to successfully morph their businesses into the new digital age. The key to the journey ahead lies in the hands of the leaders forging this journey to help their organisations make a successful transition towards becoming digitally led and digitally based businesses.

Research studies, bodies of work and supporting evidence to confirm leadership styles' impact on digital transformation are limited. The scholarly thought on digital transformation is mainly focused on the technology and strategic imperatives that enable organisations to implement successful digital technologies. According to Philip (2021), when determining the success of digital transformation, it is important to assess leadership capabilities and talent development. McCarthy, Sammon and Alhassan (2021) echoed these sentiments noting that limited material is available explaining leadership's role in the digital transformation journey. They also noted that the literature had not adequately provided a comprehensive understanding of the leadership styles and traits needed to enable successful digital transformations.

More specifically, studies on the leadership styles to be adopted when implementing digital transformation programs to ensure successful outcomes are limited according to Imran, Shahzad, Butt and Kantola (2020). They highlighted that the leadership competencies required to lead an impactful digital transformational journey are unclear, and they sought to identify the critical leadership competencies through a qualitative, grounded theory approach study.

Added to this, is the absence of an agreed and coherent concept of the leadership styles best suited to deliver successful digital transformation journeys. Kokot, Kokotec, and Čalopa (2021) acknowledged that input from leaders is crucial despite their limited technical knowledge and understanding. They further noted that organisations employing leaders with different leadership styles attain mixed results on their transformation journeys. To overcome this, they suggest that leadership styles are examined to understand their impact and determine the most appropriate one for the organisation.

This study adopted a quantitative approach to determine the impact of digital and transformational leadership styles on the digital transformation journeys undertaken in three financial services organisations in South Africa. The outcomes of the study contribute to the limited literature about the leadership styles most likely to enable successful digital transformation journeys from a South African perspective.

1.4 Research objectives

The research aims to identify the impact that digital leadership and transformational leadership have on the digital transformation journey.

Objective 1: To analyse the impact of digital leadership on digital transformation within various divisions or departments at three financial services organisations: – Organisation1, Organisation 2 and Organisation 3.

The hypothesis is that digital leadership is a positive contributor to delivering successful digital transformation journeys.

Objective 2: To analyse the impact of transformational leadership on digital transformation within various divisions or departments at three financial services organisations: – Organisation1, Organisation 2 and Organisation 3.

The hypothesis is that transformational leadership is a positive contributor to delivering successful digital transformation journeys.

Objective 3: Determine which leadership style – digital or transformational has more impact on digital transformation at three financial services organisations: – Organisation1, Organisation 2 and Organisation 3.

The hypothesis is that digital leadership is a more positive contributor to delivering successful digital transformation journeys than transformational leadership.

Figure 1. 1 – Leadership relationship with digital transformation (Author; Own)

1.5 Significance of the study

The study aims to assist digital leaders in the financial services sector to understand the impact of digital leadership and transformational leadership on their digital transformation journeys. The outcome of the study will contribute to identifying the leadership styles most appropriate to be adopted during digital transformation journeys to ensure that such journeys are successful.

The current economic environment post COVID-19 has forced organisations to increase their focus on digital transformation and ensure that their leaders can successfully lead their organisations through their digital transformation journeys. This focus has highlighted the need to proactively identify leadership styles that are most likely to result in successful digital transformations.

Research consulted during the literature review confirmed limited research addressing the leadership styles best suited to supporting digital transformation journeys. The study will contribute to the limited literature about the leadership styles most likely to enable successful digital transformation journeys from a South African perspective.

1.6 Delimitations

1. The study is limited to specific divisions or departments within the participating organisations.
2. The study surveys will only be issued to employees directly involved in or supporting digital projects or journeys in the pre-identified divisions or departments.

1.7 Definition of terms

Terms	Definition
Digital transformation	Digital transformation is a change initiative within organisations to integrate digital technology into all areas resulting in fundamental changes in how the organisation operates (Philip 2021).
Leadership	Leadership is an interactive and mostly influential relationship among leaders and followers to affect changes for mutual benefit. Four essential elements are noted to be present if leadership exists, namely.: • the relationship is based on influence, • leaders and followers are people in this relationship, • leaders and followers intend fundamental changes, and • leaders and followers develop mutual purposes. The concept of leadership refers not only to senior leaders and managers, but to leaders at all levels (Northouse 2019).
Leadership styles	Leadership styles refer to a leader's characteristic behaviour when directing, motivating, guiding, and managing groups of people for a specific outcome generally identified at an organisational level (Anderson and Sun 2017).

Digital leadership	A leadership style that focuses on using and encouraging the use of digital technologies across all areas of the organisation so that it may transform successfully and continue to meet customer requirements and increase the value of the organisation (Narbona 2016).
Transformational leadership	Transformational leadership influence the attitudes and behaviours of their follower with the aim of having their followers align to their own values and ideals for the betterment of the organisation. (Díaz-Sáenz 2011).
Researcher	Student conducting the study.

1.8 Assumptions

The study will be conducted on certain assumptions:

- The respondents identified for the survey have fulfilled a role in the identified digital project which may differ from the daily role they fulfil.
- Projects classified as digital transformation initiatives are aligned with the organisation's strategy.
- The success factors used to measure the identified digital transformation initiative are valid and relevant for the organisation.
- Respondents may choose not to complete the survey.

1.9 Chapter outline

Item	Title	Description
Chapter 1	Overview	Purpose of the study, context, research problem, objectives, and significance of the study
Chapter 2	Literature review	Digital transformation and leadership styles
Chapter 3	Research methodology	Research methodology, research design, population, sampling, validity and reliability, data collection instruments, limitations, and ethical considerations
Chapter 4	Results	Results obtained from the survey
Chapter 5 & 6	Discussions, conclusions, and recommendations	

Table 1. 1: Outline of the research study.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The primary focus of the literature review section is to highlight insights and learnings from prior studies conducted in the fields of leadership with a specific focus on transformational and digital leadership styles and their relation to digital transformation journeys.

This chapter will provide an overview of the concept definitions, the leadership theories reviewed, outcomes of prior studies consulted and a preliminary literature review conclusion.

2.2 Definitions

To unpack and understand the relationship between digital transformation and leadership styles, the concepts would first need to be defined.

2.2.1 *Digital transformation defined.*

Armstrong and Cooper (2021) linked digital transformation to the creation and capture of new sources of business value. They defined digital transformation as the process of pervasive digitisation and digitalisation, as well as the exploitation of the full spectrum of technological advances.

Many scholars and researchers have identified a lack of a common definition and application of digital transformation resulting in vastly different views on what digital transformation is. According to Morakanyane, Grace, and O'Reilly (2017), digital transformation is either viewed as a paradigm or process or associated with business models and strategy. They go on to highlight that digital transformation is either viewed as a radical process that occurs over time or as the daily occurrence of all technology enabled change and implementation, including small system enhancements and implementations. Their study carried out a systematic literature review to address the inconsistencies and lack of a unified definition of digital transformation. The proposed outcome was that they

defined digital transformation as an evolutionary process that leveraged digital capabilities and technologies to enable operational processes as well as business models and customer experiences to create value.

Despite digital transformation being a widely known concept, Schallmo, Williams, and Boardman (2020) contributed towards defining the concept by developing a five-step framework for the digital transformation of business models and providing a blueprint on how it can be applied in practice. The five steps include digital reality, digital ambition, digital potential, digital fit, and digital implementation.

The academic and research challenges resulting from the absence of a unified, consistent definition for digital transformation were also highlighted by Gong and Ribiere (2021). Their research noted that digital transformation extended beyond the realms of technology and is more about a strategic renewal and transformation to recreate value at different levels of an entity. They also noted that resources and capabilities attributes highlight that human and leadership aspects are essential attributes to their definition along with the entity attribute that further highlights that digital transformation is not just an organisation issue but is increasingly becoming an ecosystem and societal challenge and necessity.

Other research authors were not as concise with a single definition for digital transformation. Baslyman (2022) reported that most interviews conducted for his research returned varied definitions for digital transformation. However, despite the varied definitions, all answers mentioned the common element of technology being used to drive changes in business, sometimes structurally as well as operationally to increase value to the entity or its customers.

The definition of digital transformation used by Tiekam (2019) also referenced the link with technology. However, it expanded on the technology used, like mobile technologies and analytics integrated into the entire organisation or parts of it, and fundamentally supported changing how they operate.

Philip (2021) plainly defined digital transformation as “implementing the latest digital technologies and tools to update and improve business processes,

procedures, company culture, and customer experiences in order to meet or exceed changing business needs".

The common thread through the preceding definitions clearly links technology and digital transformation.

2.2.2 *Leadership defined*

Leadership is either seen from an information-processing or behaviour perspective. According to Northouse (2019), leadership is a process whereby an individual influences a group of individuals to achieve a common goal.

The definitions of leadership are vast, and span across technical expertise, delivery outcomes, influence, and several other elements, which, together emphasise the main trait of leadership being the ability to interact with others. Henderikx and Stoffers (2022) defined leadership as the "ability of an individual to influence, motivate and enable others to contribute toward the effectiveness and success of the organisation of which they are members".

According to Harbani, Muna, and Judiarni (2021), leadership is the ability to "lead" or guide others. However, despite this simple explanation, they cited it as a complex topic requiring various definitions due to the multitude ways it can be viewed. They also highlighted the differences between managers and leaders, noting that management positions are not mandatory when identifying leaders.

Gcelu (2021), defined leadership as the management of varied behaviours in support of achieving an organisation's goals. She also notes that leaders should understand the varied approaches adopted by individuals and teams when resolving problems and that as leaders, they are responsible for managing varied personalities while enabling creative problem-solving skills.

The work completed by Rosari (2019) took an interesting perspective by comparing the definitions of leadership as used by Bernard M. Bass (1990), John P. Kotter (1988), and Joseph C. Rost (1993) and then choosing the definition most promising in terms of practical application. According to Rosari (2019), Rost's definition of leadership "an influence relationship among leaders and

followers who intend real changes that reflect their mutual purposes", was the best for a practical application. A key distinction noted was that leadership did not equate to a person and was also different to management.

2.2.3 *Leadership style defined*

The next phase in the leadership discussion extends to leadership style, which broadly addresses the action or verb of leadership. History has clearly shown the evolution of leadership driven by the types of economies in each instance. These styles were established based on personal attribute patterns, authority and, hierarchy and were also dependent on social structures and influences within which organisations operated. The Fourth Industrial Revolution and technological developments have contributed to creating a new view of leadership styles.

Warrick (1981) reviewed various leadership styles from researchers covering the approaches studied at the universities of Ohio State and Michigan. The study conducted by the Ohio State University began in 1945 and some of the chief contributors were Hemphill, Stogdill, Coons, Fleishman, Harris, and Burtt. The most important contribution from their study is the initiating and consideration structure that they identified as a basic of leadership. They used factor-analytical procedures to identify these variables as they sought to find the smallest number of dimensions to describe leadership behaviour.

Warrick (1981) indicated that the study by Kahn, Likert, Katz, Maccoby, and Morse in 1947 at the University of Michigan resulted in similar findings. They investigated the relationship between supervisory behaviour and employee productivity and satisfaction. Their study identified two leadership styles: employee centred and production centred leadership styles. Core outcomes of the studies again highlighted that leadership styles were closely associated with the behaviours exhibited by the people identified as leaders.

Nanjundeswaraswamy and Swamy (2014) also defined leadership style as the consistent pattern of behaviour exhibited by leaders. They noted that different leadership styles affect an organisations effectiveness and performance and that

the failure or success of organisations or social units is mainly credited to their leadership style.

Anderson and Sun (2017) defined leadership style as the pattern of attitudes that leaders hold and behaviours that they exhibit. They also documented the new leadership styles that have been proposed to capture important missing aspects beyond the dominant charismatic or transformational and transactional framework.

2.2.4 *Digital leadership defined*

According to Harbani et al. (2021), digital leaders use available resources according to their potential and competencies after evaluating tasks and results while constantly providing feedback to everyone. This style differs significantly from traditional managers, who were perceived as recognising orders, planning resources, and evaluating results.

On their part, Eberl and Drews (2021:4) set out to provide or contribute to a unified definition of digital leadership. They defined it as “a complex construct aiming for a customer-centred, digitally enabled, leading-edge business model by (1) transforming the role, skills, and style of the digital leader, (2) realizing a digital organisation, including governance, vision, values, structure, culture, and decision processes, and (3) adjusting people management, virtual teams, knowledge, and communication and collaboration on the individual level”.

Narbona (2016) defined digital leadership as the use of digital tools in a virtual world.

Klein (2020) defined digital leadership as the person or leader leading the digital transformation process, but also the organisation in a digital environment depending on the digital maturity level the organisation. By way of explanation, Klein (2020) noted that once the digital transformation process reached an end state and the organisation is deemed to be converted to being digital, then the leadership requirements would default to leading a digital organisation. However,

given that most organisations are still in the transformation process, it requires a specific leadership style, namely digital leadership.

Eberl and Drews, (2021:4) sought to develop a new definition of digital leadership based on a structured literature review grounded in 96 publications. The resulting definition describes it as “a complex construct aiming for a customer-centred, digitally enabled, leading-edge business model by (1) transforming the role, skills, and style of the digital leader, (2) realising a digital organisation, including governance, vision, values, structure, culture, and decision processes, and (3) adjusting people management, virtual teams, knowledge, and communication and collaboration on the individual level.” The definition was constructed on three important parts: Firstly, linking the purpose of digital leadership to creating a customer centric business through the adoption of technology. Secondly, identifying the determinants such as vision, structure and culture that influence digital leadership. Finally, highlighting the way digital leaders steer the different determinants to serve the purpose of the organisation.

In another literature review, Sağbaş, and Erdoğan (2022) defined a digital leader as someone with innovative digital ideas who can motivate their employees to develop digital strategies best suited to a digital environment. According to them, understanding digital leadership was key to maintaining the survival and competitiveness of organisations in current times. In addition to the definition of digital leadership, they added the general characteristics of digital leadership as being an individual with a vision for digital transformation, who can develop flexible and adaptable policies, has digital knowledge and intelligence, motivates his employees, allows them to make mistakes, and who demonstrates empathic and conciliatory behaviour. They also highlighted the close resemblance between digital leadership and other leadership styles such as visionary, entrepreneurial, transactional, transformative, and democratic leadership.

The paper by Promsri (2019) developed a model defining the qualities required from digital leaders to achieve successful digital transformations. Using content from online digital leadership articles, Promsri (2019) adopted the synthesis matric methods and congruence index of sources technique to analyse the data.

The result was a model called “Six Characteristics of a Digital Leader for Digital Transformation Success.” The characteristics included digital knowledge and literacy, vision, customer focus, agility, risk-taking (to create an experimental atmosphere) and collaboration.

2.2.5 *Transformational leadership defined*

According to Anderson, Baur, Griffith, and Buckley (2017), transformational leadership is characterised by people who motivate others to focus on achieving the organisation’s goals. They achieve this through four specific factors exhibited:

1) They exert idealised influence to attract followers keen on being like them.
2) They provide, inspirational motivation through a shared vision that motivates others.
3) They value creativity and embracing challenges that create situations which support intellectual stimulation.
4) They adopt an individualised style when attending to the development needs of their followers and encouraging personal growth.

Díaz-Sáenz (2011) defines transformational leadership as the process by which a leader fosters a group or organisations performance beyond what is expected under the strong emotional attachment with their followers, combined with the collective commitment to a higher moral cause.

Narbona (2016), defined a transformational leader as someone with a vision and capable of influencing and motivating others. Such an individual can communicate an appealing vision of the future and stimulate creativity consistently while providing their followers with learning opportunities and self-fulfilment.

2.3 Theoretical framework underpinning the study.

Researchers and academics rely greatly on theories as they provide a framework for organising existing knowledge and explain the relationships between various constructs.

The topic of leadership has seen an increase in scholarly research in recent years resulting in the development of diverse leadership theories.

As noted by Henderikx and Stoffers (2022), leadership theories have evolved over the years from a focus on traits including the Great Man and Trait theories, to skills, adoption, and adaption of leadership styles to a situation as highlighted in behavioural, situational, and contingency theories. The focus more recently has changed to centre on employee engagement and individual styles such as transformational, collaborative and servant leadership.

The proliferation of theories in the leadership field over the last decade and a half emphasises the importance and demonstrates the growing maturity in the field of leadership on the one hand but also highlights the lack of integration of leadership theories resulting in added difficulty in integrating an already complex topic (Meuser, Gardner, Dinh, Hu, Liden, and Lord 2016).

The above sentiment was further echoed by Anderson and Sun (2017). The authors reviewed emerging literature on new leadership styles including ideological, pragmatic, authentic, ethical, spiritual, distributed, integrative public and servant leadership, and proposed a new leadership style that went beyond the dominant charismatic/transformational and transactional framework. Their study noted an overlap across many styles when compared to transformational leadership as noted in the Ohio State studies. In conclusion, the study suggested continued research into a new complete range model of leadership that would explore the uniqueness of the various styles to progress research on leadership styles.

2.3.1 *Leadership theory*

Explaining leadership and defining what is needed to excel in such positions of power and leadership has been and continues to be the focus of various schools of thought. Leadership qualities that enable some to attain specific positions and others to be followers have been the focus of much attention and debate. Scholars and experts do not always agree with what it takes for some people to rise to leadership positions. In contrast, others do not agree on what keeps people in leadership positions, authority, and power. This is demonstrated by the numerous sub-theories that have evolved from the various leadership theories.

The work by Meuser et al. (2016) resulted in ten additional leadership theory graphs and analyses highlighting the constant changes in leadership theory. The other leadership theories were noted as follows:

- emotions and leadership,
- ethical leadership,
- leader and follower cognitions,
- leadership emergence,
- leadership development,
- leadership in teams and decision groups,
- implicit leadership,
- leader-member exchange,
- authentic leadership, and
- identity and identification process theories of leadership.

The theories below were selected as the basis for comparison and expanded on to understand some fundamental leadership theories that could be examined against the digital transformation journey.

2.3.2 *Behavioural theory*

Focusing on what leaders do instead of who they are is the foundation for the behavioural approach. According to the theory, leaders engage in two primary types of behaviour, namely task and relationship behaviours. This approach

focuses on unpacking how leaders combine these behaviours to influence others. (Northouse 2019).

According to Zaker, Nawaz and Khan (2016), the behavioural theory challenges the perception that there should be a single or distinct way of leading. Instead, they note that what may work in one instance may not work in another, requiring leaders to amend and refine their behaviours in varying situations continually.

2.3.3 *Contingency theory*

The contingency theory of leadership proposes that a leader's effectiveness level depends on their chosen leadership style. The theory states that a leader can lead effectively in one situation but ineffectively in another. If a leader does not analyse each situation within the various circumstances and adjusts to the situation, their leadership style may not be effective. According to this leadership theory, a leader's success is dependent on the specific situation. The factors determining if a leader will succeed includes the task, their personality and the composition of the group that is meant to be led. The theory assumes that leadership – success or failure – is situational (Bryman, Collinson, Grint, Jackson, and Uhl-Bien 2011).

The other models that are included under contingency leadership are Fiedler's Contingency Theory, the Situational Leadership Theory, the Path-Goal Theory, and the Decision-Making Theory. Despite being similar, each model offers its own distinct views on leadership (Northouse 2019).

2.3.4 *Great Man theory*

The great man theory is one of the earliest leadership theories, developed by Thomas Carlyle in 1847, assumes that leadership is an inborn phenomenon and that leaders are *born* rather than *made*. Carlyle claimed in his "great man theory" that leaders are born and that only men endowed with heroic potentials could ever become leaders. In his opinion great men were born, not made (Zaker et. al 2016).

The theory centres on two main assumptions: 1.), that great leaders are born possessing traits that enable them to rise and lead and 2.) that leaders can arise when they are needed. According to this theory, leaders are heroes who can accomplish incredible feats against all odds implying that those in power deserve to lead because of the traits they have been endowed with due to their natural attributes, such as superior intellect, heroic courage, and extraordinary leadership (Madanchian, Hussein, Noordin, and Taherdoost 2016).

2.3.5 *Management theory*

The management theory is also referred to as transactional leadership. This style focuses on the supervision of a group's performance. The system of rewards and punishments is regularly used in business and is critical in transactional leadership. Rewards and punishment are given on the premise that people only do things for the reward. Their psychology does not allow them to do things out of goodness, but somewhat out of the promise of a reward (Nanjundeswaraswamy and Swamy 2014).

This leadership style can be highly effective as positive reinforcement and is often used to encourage and motivate employees and teams to succeed. The criticism around transactional leadership is that punishment can decrease morale, affecting employees negatively. It is also regarded as a lazy leadership style because rewards and punishment are relatively simple ways to lead employees and teams (Madanchian et al. 2016).

2.3.6 *Participative theory*

Wang, Hou and Li (2022) noted that the ideal leadership style takes the input of others into account, also known as participative leadership. These leaders encourage participation and contributions from team members, helping team members feel more relevant and committed to the decision-making process.

According to this theory, everyone is involved in the decision-making process affecting the team and the organisation, while the leader directs the charge. However, the leader retains the right to allow the input of others.

Dolatabadi and Safa, (2011) observed that one of the advantages of this theory is that employees are more engaged and motivated. One the other hand, the disadvantage is that leaders are perceived as weak and may not extract the best results for the organisation because the focus is on the employee's needs.

2.3.7 *Power theory*

The link between power and the potential to influence is often deemed to be closely linked to leadership. Power is distinguished by position and personal power. Assigned leadership also known as position power, enables an individual to derive their power by virtue of the title they hold in an organisation and includes coercive power, reward, and information. Personal power, on the other hand, comes from followers who believe in the value they perceive their leaders to have. Personal power includes referent and expert power (Northouse, 2019).

According to Dinh et al. (2014), the power theory focuses on the power and influence, power types and sources, consequences of position and personal power, impression management and influence. The focal level of analysis for these influences and political tactics is dyadic, group and organisational as opposed to institutional, regional, and societal.

2.3.8 *Relationship theory*

The relationship theory focuses on leaders that emphasise their interactions with others. They often serve as mentors and actively engage in the role by scheduling time to talk to mentees and meeting their needs. They also emphasise on making work enjoyable for as many people as possible and actively fostering a positive work environment.

According to Zaker et. al (2016), this leadership style is perceived by employees as effective as they are engaged and confident. They are also inspired to be good leaders to others. Mentorship provides excellent opportunities to foster employee growth and can be used to encourage employees to stay at the organisation for longer.

This type of leadership received considerable criticism including that relationship driven leaders may be unwilling to view problematic employees at face value, can let relationships get in the way of work, and can be influenced to favour people over productivity. However, most experts agree that relationship driven leaders are more effective eventually (Popper, 2004).

2.3.9 *Situational theory*

Situational leadership is a prescriptive approach that suggests how leaders can become effective in different organisational settings. This approach provides a model that suggests how leaders should behave based on the demands of a particular situation (Northouse 2019).

Thompson and Glasø (2015) explained that Hersey and Blanchard's situational leadership theory, introduced in 1969 as the Lifecycle of Leadership, proposed a taxonomy consisting of four leadership styles and a framework for matching each style to specific situations. A directive leadership style was matched against the enthusiastic beginner, the coaching style of leadership was appropriate for the disillusioned learner, the supportive leadership style was well suited for the capable but cautious performer, and the delegating style of leadership was best for the self-reliant achiever.

2.3.10 *Trait theory*

The trait theory is the oldest modern leadership approach focusing on discovering hereditary traits that predict leadership. Researchers were interested in defining the personality traits predisposing one to successful leadership. However, subsequent studies adopted the behavioural approaches instead because the trait approach did not define or produce consistent traits that predict leadership (Meuser et al. 2016).

Leadership as a trait approach implies that specific individuals have inherent or in-born qualities that make them leaders. It supports the commonly noted phrase that *leaders are born and not made* thus restricting leadership to individuals who “deserve” to be in their position because of their traits.

The most significant criticism of the *trait* theory is the belief that leaders are predetermined and cannot be developed, schooled, or moulded - they are either chosen or not. There is also criticism that most of the traits associated with this theory are inherently masculine, and do not match the actual psychology of good leaders (Northouse 2019).

2.4 Prior studies

Prior studies that were done worldwide since 2017, focusing on digital transformation, the relationship between transformational leadership and digital transformation as well as the relationship between digital leadership and digital transformation were consulted. These studies were supplemented by other leadership styles reviewed against digital transformation to ascertain other outcomes that could contribute to understanding the relationship between leadership styles and digital transformation journeys.

2.4.1 *Digital transformation*

Baslyman (2022) focused on providing a holistic understanding of digital transformation in practice through a qualitative study that interviewed participants in senior digital transformation positions in their organisations. The participants defined digital transformation and its core goals, mostly related to optimisation and business growth. Some of the challenges identified included the impact of changes within the organisation and defining a digital transformation strategy aligned with the organisation's overall goals and business strategies.

According to the outcomes of the longitudinal case studies conducted by Wessel, Baiyere, Ologeanu-Taddei, Cha and Blegind Jensen (2021), digital transformation refers to the activities that leverage digital technology in defining the organisation's value proposition. IT enabled activities on the other hand, leverage digital technology to support the value proposition and involves a new organisational identity.

Sánchez (2017) formulated a framework explaining the choices, capabilities and resources organisations need for digital transformation journey. The qualitative

study raised the importance of alignment between IT adoptions and the organisation's strategy to support digital transformation. He further noted that organisations adopting an agile methodology responded quicker and supported the competitive advantage attained through intangible assets like skills. Digital transformation, unfortunately, includes challenges like data governance and leadership forcing leaders to adopt a visionary approach to take maximum advantage of opportunities throughout the digital transformation journey.

The study conducted by Alkhamery, Zainol, and Al-Nashmi, (2020) was based on the threat pre-digital firms faced because of the digital disruptions caused by rapid technological developments continuously impacting all industries specifically telecommunications. They noted that most digital transformation responses did not meet the organisation's expectations, mainly due to the lack of an acceptable theoretical model to help managers better understand the process of achieving digital transformation. The study used a quantitative approach after engaging 260 telecom employees to determine the leadership roles and organisational culture in enhancing its readiness for digital transformation. The model developed through the study explained that firms equipped with digital leadership capabilities and supported by an organisational culture for change should have an increased readiness for digital business transformation, enabling organisations to respond more positively to digital disruption.

Kazim's (2019) study focused on digital transformation and leadership styles using a qualitative multiple case study approach to identify the optimal leadership characteristics, traits and styles that could enable successful digital transformation programmes. Eight individuals across various sectors in France were interviewed, with the results indicating that leaders' preparedness to adapt their styles, characteristics, and trait in response to the disruptive nature of transformation journeys once they have a clear vision, commitment, and support from executives. Some critical traits and styles linked to leaders' successful contribution to digital transformation journeys included their ability to positively influence, offer training and coaching, support experimentation and contribute to improved ways of working at all organisational levels through the adoption of collaborative, agile and inclusive methodologies.

The study by Bican and Brem (2020) focused on understanding the inter-relationship between digital business models, transformation, technology, innovation, and entrepreneurship with a view on how these aspects would support an organisation's sustainable growth. They analysed earlier literature and conducted a case study in a German high-tech organisation. They conducted a questionnaire with fifteen innovation managers of the organisation and then supplemented that with a focus group of twelve different innovation managers. With the aim of providing sustainable growth, the authors proposed a conceptual framework linking the relationship between digital readiness, technology, and business models to innovation through digital transformation as the moderator. The study concluded that digital transformation spans the entire digital framework enabling all digital activities within an organisation to converge. In these instances, innovation was placed at the centre of digital technology and digital business models and digital readiness were noted as the organisations' enabler within the digital framework.

2.4.2 *Transformational leadership and digital transformation*

Most of the articles sourced assessed transformational leadership style against digital transformation requirements.

The study by AlNuaimi, Singh, Ren, Budhwar, and Vorobyev (2022) used a quantitative approach to examine the relationships between digital transformation leadership, organisational agility, digital strategy, and digital transformation in public sector organisations. They found that transformational leadership and organisational agility positively influence digital transformation, and that transformational leadership influences organisational agility. The study also suggested that transformational leadership attributes such as developing teams and individuals, engendering trust, self-sacrifice, and leading by example should be supplemented by the digital knowledge required to help organisations through their digital transformation changes.

The aim of the study undertaken by Can (2021) sought to build an overall understanding of the impact of leadership on the success of complex digital transformations through a systematic literature review. Transformational

leadership was identified as supportive in developing new skills, knowledge, and experience necessary for digital transformation. The review of the current research reveals that ongoing discussions on how leadership structure and styles interact with other organisational characteristics and attributes are lacking. These contextual factors are points for deciding the appropriate leadership approach and assessing its outcomes regarding digital transformation. Their interactions with possible directions for leadership should be carefully examined so that the factors facilitating, or weakening, the positive role of leadership can be identified. Can suggests five themes that researchers can focus on to better understand these dynamic interactions in the future. The themes include matching digital transformation stages and strategies with appropriate leadership styles, unpacking and understanding leader's commitment to the digital transformation strategy, ensuring employee involvement in the digital transformation process, developing digital dynamic capabilities through leadership, and understanding the interaction between leadership and organisational context.

Calen, Tarigan, Rosita, Susanto, and Alimin (2021) analysed the relationship between transformational leadership, leader member exchange, digital transformation on work innovation capabilities and organisational citizenship behaviour using quantitative methods and data analysis techniques. It was concluded that transformational leadership significantly affects work innovation capabilities but has no significant effect on organisational citizenship behaviour and work innovation capabilities.

A similar study by Theng, Wijaya, Juliana, Eddy, and Putra (2021) sought to analyse the relationship between organisations performance and innovation capabilities through the adoption of transformational and servant leadership and digital transformation. The study used quantitative methods and data analysis techniques and found that transformational and servant leadership has a significant effect on organisational performance but has no significant effect on work innovation capabilities and organisational performance through work innovation capabilities.

Gcelu (2021) conducted a qualitative literature review focused on the concept of e-leadership, digital factors on leadership, and traditional leadership types. The aim of the study was to determine the appropriate leadership strategies for digital transformation and the factors leading to a leadership shortage. The results of the study noted that work-life, communication, talent management and organisational culture have changed driven by changes in technology. This has resulted in the need for new leadership strategies that are focused on building digital capabilities to lead effective digital transformations. The new leadership strategies included digital leadership, creating a diverse workforce, and embracing flexibility as other key attributes.

The study by Truter (2016) explored the relationship between transformational leadership and having higher digital maturity levels. The second objective was to determine whether one or more transformational leadership factors represented by four behaviours i.e., idealised influence (charisma), individual consideration, inspirational motivation, and intellectual stimulation, affect digital maturity. Truter (2016) issued an online survey to 69 participants using a quantitative approach. The outcome of the study confirmed that idealised influence and individualised consideration which are transformational leadership behaviours, positively affect digital maturity. Conversely, Inspirational motivation also a transformational leadership behaviour, negatively affected digital maturity.

The research “by Philip (2021), applied dimensions of transformational leader behaviours to highlight the behavioural changes that pertain to planned and forced digital transformations. Transformational behaviours such as motivating and creating a new vision and innovative ideas were best suited for planned transformation. Leadership styles advocating a supportive climate and motivating employees was identified as appropriate for forced transformation to address structural and behavioural changes.

2.4.1 *Digital leadership style and digital transformation*

A few papers have delved into the concept of digital leadership despite the loose definition assigned to it.

The paper Kapure and Townsend (2021) focused on understanding why digital leadership is important in the era of digitalisation using qualitative research on the subject through a literature review to support the thesis. Given the increased uncertainty and rapid rate of change in all areas, Kapure and Townsend (2021) highlight that understanding digital leadership and encouraging people to embrace new challenges is imperative for existence. To succeed, people must be able to learn, unlearn and re-learn continually. They conclude that leaders must develop new skills to guide their organisation into the uncertain future effectively.

Bach and Sulíková (2021) aimed to address and critically examine a current concept of digital leadership which is often seen as a new leadership style emerging due to the Fourth Industrial Revolution. They concluded that the concept of digital leadership is not new but has been in existence for more than 150 years known as “mission-type tactics” that was introduced by Prussian General Helmut von Moltke. Bach and Sulíková (2021) went on further to highlight that digital leadership is a third variant of transformational or transactional leadership but noted that unlike transformational leadership, digital leadership skills could be acquired.

The purpose of the research by Harbani et al. (2021) is for leaders to take steps and change from traditional leaders to digital leadership to manage the fast development of technology. The exploratory research used a qualitative and main writing approach. Harbani et al. (2021) concluded that the Fourth Industrial Revolution had a significant impact on leadership and that traditional leadership is not suitable to be applied. Instead, digital leadership is better placed as it provides a positive and appropriate response to overcoming significant developments in the field of digital technology. They also identified several characteristics of a digital leader necessary to build every individual for success

in an organisation namely responsibility, results of information dissemination, goals and assessments, mistakes, conflicts, change and innovation.

The study by Mihardjo, Sasmoko, Alamsjah, and Elidjen (2019) focused on assessing the direct and indirect influence that digital leadership has on customer experience orientation in developing business model innovation. The study defined digital leadership as a combination of digital culture and digital competence that used transformational leadership styles and digital technology. For the study, 88 senior leaders from Indonesian telecoms firms responded to a survey that was sent to them. Based on the data, the conclusion was reached that digital leadership had both a direct and indirect impact on customer experience orientation in developing business model innovation.

The study by Tanzania based Mwita and Jonathan (2019) investigated the characteristics of digital leadership for digital transformation processes. The study drew feedback from 212 respondents. It noted digital leadership characteristics as facilitating digital innovation and initiating transformation while imparting knowledge and skills. The study concluded that expressing leadership aspects such as delegation, influencing others and bringing teams to a consensus is critical to driving team's performance. The study also recommended that digital leaders adopt a transformational leadership style instead to ensure the success of the transformation journey.

The research by April and Dalwai (2019) aimed to understand the changing leadership styles practised for digital transformations undertaken at a leading wealth management organisation in South Africa. The research adopted a qualitative approach using semi-structured interviews with 22 participants. It concluded that leadership styles during digital transformations were closely linked to existing leadership theories; digital leaders demonstrated a greater situational awareness and cognitive ability to set the organisation's direction. It was also noted that these digital leaders require more emotional attentiveness to rearrange their plans in response to the consistent changes in their environments.

2.4.2 *Other leadership styles and digital transformation*

Other scholars and authors sought to examine the relationship between digital transformation and leadership styles without pre-defining the styles. These studies enable the readers to access several other leadership styles that may be valuable supporters of the digital transformation journey. It adds vast richness to the exploration of the optimum leadership styles to adopt for digital transformation journeys.

The purpose of the research by Tiekam (2019) was to understand the type of leader and skills need for successful transformation journeys. The qualitative study involved 17 direct, semi-structured, in-depth interviews across nine industries. The study noted that adaptive leadership as well the four traditional skills i.e., cognitive, business, interpersonal and strategic skills were relevant for a disruptive digital transformation. Other skills such as understanding technology, meta-cognitive skills, a challenger mind-set, learning from failure, resilience and collaborating were noted as required. The study noted that these skills as critical contributors to successful digital transformation.

Dubru, (2017) adopted a qualitative approach involving 15 face-to-face interviews to understand the requisite competencies required when leading digital transformations in the banking sector. The study confirmed that traditional competencies such as business, cognitive and influencing skills were crucial when leading transformation journeys. In addition, experiential learning, futuristic thinking, entrepreneurial mindset, and integrator competencies were also noted as key when leading transformation journeys.

Through an exploratory literature review process, Henderikx and Stoffers (2022) sought insight into whether digital transformation influences future leadership behaviours and management specifically management below the senior level. The study suggested that an “altro-centric leadership or an other-cantered leadership style” was needed to adequately address the disruptive nature of transformation journeys. The study also noted the impact of artificial intelligence on managerial tasks and employee performance and highlighted the importance of adopting soft skills like humility, compassion, empathy, and integrity. At the

same time, it was also suggested that managers focus on the soft skills side of management, such as coaching, motivating, and empowering employees. This study demonstrated the necessity to redefine leadership requirements in an increasingly digitalised world.

Sow and Aborbie (2018) looked at identifying leadership styles impacting an organisation's digital transformation and establishing the impact that leadership styles had on influencing an organisation's digital transformation direction. The authors undertook a qualitative study to determine the impact of leadership style on an organisation's digital transformation direction. The study concluded that leadership style did have a significant impact on the organisation's digital transformation direction and played a significant role in the organisation's change efforts. In addition, organisational leaders lacked some of the technical knowledge required to lead the project. Leadership styles were noted as influential in organisations and could implement norms, expectations, and desirable outcomes during large-scale transformative projects.

Muna and Judiarni (2021), examined the steps and attitudes leaders would need to take from traditional to digital leadership because of the rapid technological developments and changes because of the Fourth Industrial Revolution. The study identified seven characteristics of a digital leader, namely: mistakes, conflicts, responsibility, goals and assessments, information dissemination, and change and innovation. The study also noted that leaders in the digital era are required to have perseverance, a passion for serving as well as integrity and credibility to accelerate the change needed to achieve an organisation's vision.

The Portuguese based study by Porfirio, Carrilho, Felicio and Jardim (2021) analysed how a firm and its management's characteristics supported the promotion of digital transformation. The conclusion of the study confirmed that leadership plays a crucial role in promoting digital transformation. It also noted that the management's characteristics play a more significant role in advancing transformation within an organisation as compared to the firm's characteristics.

In the paper by Weber et al. (2022the authors conducted a study with 815 participants focused on analysing the effectiveness of complementary leadership

behaviours relevant for the digital age. The research noted leadership as the key to successful digital transformation. The study also highlighted that combining complementary leadership behaviours did not result in high levels of employee behavioural changes.

The purpose of the study titled by Cahyadi, and Magda, (2021) focused on investigating the digital leadership capabilities of the G20 countries. The capabilities included digital readiness, innovation, and competitiveness. The study confirmed that the G20 countries did possess these capabilities and that some countries were leaders in global digitalisation.

2.5 CONCLUSION OF LITERATURE REVIEW

The vastness and varied explanations of leadership make this a challenging field to navigate at the best of times. Adding the complexity of digital transformation to the mix deems finding a workable solution to marrying the ideal leadership styles to the digital transformation journey significantly challenging.

Digital transformation is being perceived as a job creator and a job destroyer placing a significant burden at the feet of organisational leaders to navigate these unchartered territories. According to Cortellazzo, Bruni, and Zampieri (2019), the increased connectivity and information sharing are contributing to breaking hierarchies, functions, and organisational boundaries, ultimately leading to the morphing of task-based activities into more project-based activities, wherein employees are required to directly participate in the creation of new added value hence posing further challenge to leadership. Leaders must ensure that their organisations develop digital mindsets and the agility required to respond to disruptions related to digital technologies.

These new leadership requirements needed to direct digital transformation journeys have rendered the older leadership theories and styles like the Great Man, Trait and Power Theories as ineffective in being able to lead successful digital transformation journeys.

The digital transformation journey should not be seen as purely a technological issue despite the correlation between digital transformation and technology in the literature review. Such transformation journeys cause fundamental changes in organisation's processes and structures, prompting a new understanding of the leadership style required to steer organisations through this complex journey.

Since most companies are still beginning of their digital transformation, an understanding and standard model (Klein 2020) should be developed for steering on the leadership styles best suited to guiding organisations through their digital transformation journeys.

The consistent message is that leaders must be able to blend traditional and new styles and skills to effectively guide their organisations into leading edge digital organisations (Kane et.al., 2018). To support such a transition, the behavioural and situational theories of leadership are best suited to supporting such flexibility and results orientated mindsets required of leaders directing such digital transformation journeys. Within these theories, the transformational leadership style as well as the digital leadership style were further distilled as being styles that would be best suited for digital transformation journeys.

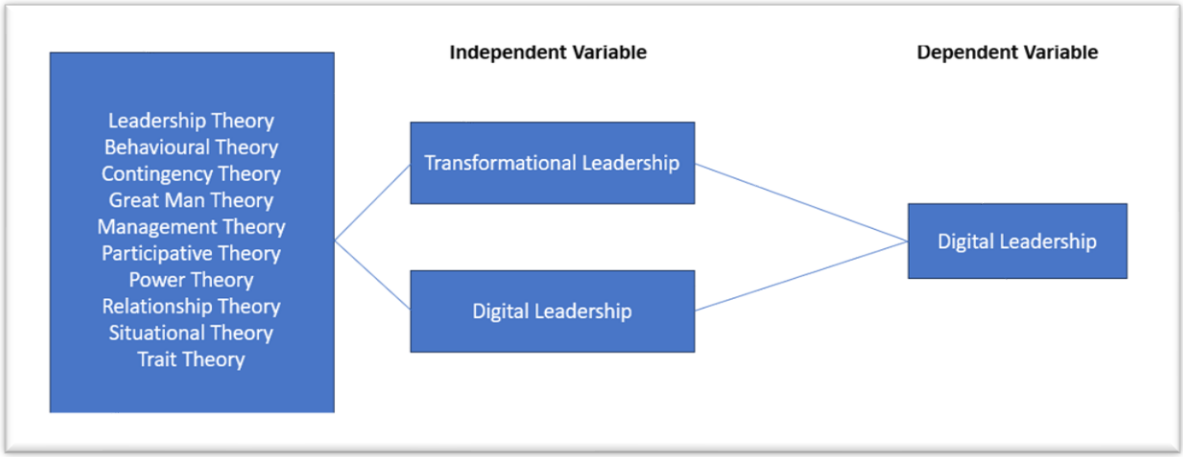

Figure 2.1 – Theoretical framework depicting Independent and Dependent Variables (Author: Own)

Given the above, the first two objectives of the study are to analyse the impact of transformational and digital leadership styles on digital transformation journeys in various departments of three identified organisations. These objectives aim at

understanding the impact that each of these leadership styles may have had on the digital transformation journeys that have taken place in each of the business areas within the identified organisations.

The third objective is to determine which of the two leadership styles, i.e., digital leadership and transformational leadership, has a more significant impact on digital transformation within each of the three organisations. This outcome will provide a tangible guide on what works best for digital transformations so that managers and leaders may actively look to adopt such styles in future.

CHAPTER 3. RESEARCH METHODOLOGY

3.1 Research approach

Research studies could use a quantitative, qualitative or a mixed research method (Bhattacherjee 2012).

A quantitative method contains numbers, proportions, and statistics, while a qualitative method uses quotes, words, and descriptions to explore the meaning and usually has no measurements or statistics. (Williams 2007).

A quantitative approach was used to address the questions posed by this study as a quantitative approach was expected to obtain more responses, cost-effectively from various locations across South Africa.

The quantitative analysis was conducted on collected data from questionnaires, to understand better the association between the research variables being transformational leadership, digital leadership, and digital transformation journeys. The study targeted individuals from the selected business units of the organisations who have been part of digital transformation journeys.

3.2 Research design

The research design was a comprehensive plan defining the overall approach to testing the research question (Hofstee, 2011) and articulating the data collection in the research project. (Bhattacherjee, 2012).

Research design could be classified into empirical and non-empirical categories (Moutan (2013)). Non-empirical categories use modelling, philosophical and conceptual analysis, and literature reviews to develop an understanding of the topic. Empirical studies use data to derive new knowledge. This study adopted an empirical approach to provide comprehensive insights into the research problem.

The first two objectives of the study were to analyse the influence of digital leadership and transformational leadership on digital transformation at various business units within three organisations.

The third objective was to determine which leadership style between digital and transformational leadership significantly impacts digital transformation.

The constructs and variables relating to the influence of digital leadership and transformational leadership on digital transformation was gained through the review of prior studies and literature. The study assumed that the relationship between digital transformation (dependent variable) and transformational and digital leadership styles (independent variables) could be tested using empirical approaches. As a result, the researcher adopted a cross-sectional design using quantitative techniques.

3.3 Data collection methods

A large quantity of data can be collected and generalised for analysis purposes through surveys (Creswell (2014)). Questionnaires were prepared and subjected to the supervisor's critique to establish precision, alignment, and accuracy before distribution.

Data was collected using an online questionnaire sent to identified leaders involved in a digital transformation journey. The identified individuals have sound exposure to digital transformation practices and principles, making the findings more relevant and accurate.

3.4 Population and sample

3.4.1 *Population*

The population is referred to as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications according to Polit and Hungler (1999).

In this study, the population was employees of specific business units from three organisations that have delivered digital transformation projects. The employees were limited to those directly involved in or supporting the implementation of digital projects or journeys managed centrally. These employees held positions as Project Sponsors, Project Owners, Accountable Executives, Project Managers and Subject Matter Experts. The roles were selected as they have sound exposure to digital transformation practices and processes to support more accurate results for the study.

Organisation 1 has ten business units with approximately 200 individuals involved in digital transformation projects; Organisation 2 has six business units with up 180 individuals involved in digital transformation projects and Organisation 3 has three business units with more than 350 people involved in digital transformation projects.

The study aimed to attain at least 60 responses from the identified individuals as the roles individuals played and the digital journeys were noted as constantly changing in each of the organisations sampled. The selection of 60 responses is based on the central limit theorem that states that as long as the sample size is large enough, the sampling distribution of a mean of independent, random variable will be normal or nearly normal (Meuleman, Loosveldt & Emonds, 2014).

3.4.2 *Sample and sampling method*

Sampling means selecting a small number of objects from a population as specified and described for the research project. According to Scott and Morrison (2007), sampling refers to selecting a subset of persons or things from a larger population, also known as a sampling frame.

The precise number of employees involved in digital transformation journeys is unknown and seen as challenging to determine, even in South Africa. The targeted population included individuals identified as having worked on digital transformation journeys.

As a result, a purposive and convenient sampling method was adopted for this study, considering that a stratified method was proposed. The approach aided in targeting groups and people with a higher likelihood of receiving relevant and valuable responses for the study.

3.5 Research instruments

The research instrument or questionnaire was hosted on Qualtrics and prepared, and subjected to the supervisor's critique to establish precision, alignment, and accuracy before distribution. A copy of the instrument is included in Appendix B below. The questions were be based on the research objectives as specified in Chapter 1 and 2 as follows and have been adopted from prior studies:

- Objective 1: To analyse the impact of digital leadership on digital transformation at the various business units in each of the three organisations identified.
- Objective 2: To analyse the influence of transformational leadership on digital transformation at the various business units in each of the three organisations identified.
- Objective 3: Determine which leadership style – digital or transformational leadership has a more significant impact on digital transformation at each of the business units and their respective organisations.

A Likert scale was used to understand perceptions, and responses were measured using ordinal, interval, and nominal scales.

The layout of the questionnaire was as follows:

- Section 1 – Demographics
- Section 2: Part A - Digital Transformation**.** (Questions from the article by Sánchez (2017).

  Section 2: Part B - Transformational leadership. (Questions from Avolio, Bass and Jung (1995), Multifactor leadership questionnaire, and validated by Penava and Šehić (2014) and Prakasa, Raharjo, and Wiratama (2020) will be adopted.

Section 2: Part C - Digital leadership (Questions used were adopted from Mihardjo, Sasmoko, Alamsjah and Elidjen (2019).

3.6 Procedure for data collection

An internet-based online survey was designed and distributed using Qualtrics Survey Software (Creswell 2014). Identified individuals in the selected business units were approached by the researcher to participate in the survey. A link was then sent to the identified population, and the researcher administered the response process. The researcher also sent out reminders and called individuals to minimise the number of non-responses. Primary data was used for the study.

3.7 Data analysis strategies and interpretation

Data was exported to Microsoft Excel from Qualtrics and then sanitised before being exported to SPSS Statistics, a statistical software tool for further analysis.

The researcher adopted Spearman’s Rho statistical tool to measure the association's strength between pairs of the constructs. The Spearman's Rho values range between -1 and 1 and the absence of a linear correlation depicted by 0. Values of 1 and -1 indicate perfect positive and negative correlation respectively implying that an increase or decrease in one variable impacts the other variable in a similar way.

Spearman's Rho statistical tool was adopted to measure the association's strength between pairs of combinations of the constructs. The Spearman's Rho values range between -1 and 1. The absence of a linear correlation depicted by 0,1 indicates perfect positive correlations and a perfectly negative correlation is indicated by -1. Perfect correlations imply that an increase or decrease in one variable has a similar effect on the other.

The correlation coefficients were tested using the guide provided by Owen et al. (n.d.) below and a regression statistic tool was used to determine the

relationship between the dependent variable, digital transformation, and the independent variables of leadership styles:

- Coefficients between 0.00 and 0.19 imply a very weak correlation.
- Coefficients between 0.20 and 0.39 imply a weak correlation.
- Coefficients between 0.40 and 0.59 imply a moderate correlation.
- Coefficients between 0.60 and 0.79 imply a strong correlation.
- Coefficients between 0.80 and 1.00 imply a very strong correlation.

The regression statistic tool was adopted to determine the relationship between the dependent variable, digital transformation, and the independent variables of digital and transformational leadership predictors. The regression equation illustrates the relationship between the predictor variables and dependent variables and has the form of $\mathbf{y = b_0 + b_1x_1 + b_2x_2}$.

In the case of this study:

- y = digital transformation
- x_1 = digital leadership
- x_2 = transformational leadership
- b_0 = the intercept or the constant
- b_1 = the digital leadership regression coefficient
- b_2 = the transformational leadership regression coefficient

3.8 Limitations of the study

The study noted the following limitations:

- The commitment to participate in the survey by the target sampling population once the survey is disseminated.

3.9 Validity and reliability

Validity measures the truth or falsehood of the data obtained by using research instruments (Schindler, 2014).

The model's consistency and reliability were tested by with the Cronbach alpha coefficient method. Cronbach's alpha ranges between 0 and 1.0. The Cronbach alpha values were tested using a scale provided by Taylor (n.d.) as follows:

- Values less than 0.6 were taken as poor internal consistency
- Values between 0.7 and 0.79 were taken as fair internal consistency
- Values between 0.8 and 0.89 were taken as good internal consistency
- Values between 0.9 and 0.99 were taken as strong internal consistency

Reliability is the degree of consistency with which the instrument measures an attribute. Heale and Twycross (2015) define *reliability* as the instrument's accuracy in performing the study. To ensure reliability, the questions were adopted from past studies and were standardised, and the data was analysed using one methodology.

3.10 Ethical considerations

The research was completed via a voluntary online questionnaire that included a cover page where the participant provided their consent before participation or withdrawal from participation. Participants were also allowed to withdraw from the survey at any point in the survey. The cover letter included the researcher's contact details. No personal data was collected to ensure that the anonymity of the respondents was maintained, and all responses were be used solely for academic research purposes only. The research was performed under the Wits Business School (WBS) guidelines, a WBS ethics form was completed, and a clearance certificate was obtained.

The following additional considerations were adopted:

- The identity of the organisations and associated respondents was anonymised.
- The participant's personal information was not disclosed.

- Organisational information that is deemed confidential was not disclosed in the study.

3.11 Conclusion

This chapter explained the process that was followed when conducting the research.

3.12 Consistency Matrix

Aims/ Objectives	Literature review	Source of data	Type of data	Analysis
Objective 1: To analyse the impact of digital leadership on digital transformation.	Baslyman (2022); Baiyere, Ologeanu-Taddei, Cha and Blegind Jensen (2021), Sánchez (2017), Alkhamery, Zainol, and Al-Nashmi, (2020), Kazim (2019) and Bican and Brem (2020)	Questionnaire Section 2, Part A. Questions adopted from Sánchez (2017).	Original survey data. (Quantitative)	**Reliability and validity, Descriptive, T-Test, Correlation, and Regression**
Objective 2: To analyse the impact of transformational leadership on digital transformation.	AlNuaimi, Singh, Ren, Budhwar, and Vorobyev (2022), Can (2021), Calen, Tarigan, Rosita, Susanto, and Alimin (2021), by Theng, Wijaya, Juliana, Eddy, and Putra (2021), Gcelu (2021), Truter (2016) and Philip (2021)	Questionnaire Section 2, part B. Questions adopted from Avolio, Bass and Jung (1995) multifactor leadership questionnaire and validated by Penava and Šehić (2014) and	Original survey data. (Quantitative)	

		Prakasa, Raharjo, and Wiratama (2020).		
Objective 3: Determine which leadership style – digital or transformational leadership has more impact on digital transformation	Kapure and Townsend (2021), Bach and Sulíková (2021), Harbani et al. (2021), Mihardjo, Sasmoko, Alamsjah and Elidjen (2019), Mwita and Jonathan (2019) and April and Dalwai (2019)	Questionnaire Section 2, part C. Questions adopted from Mihardjo, Sasmoko, Alamsjah and Elidjen (2019)	Original survey data. (Quantitative)	

CHAPTER 4. PRESENTATION OF RESULTS / FINDINGS

4.1 Introduction

Chapter 4 focuses on the results and findings from the survey conducted. The results focus on the descriptive statistics relating to the participants and the analysis of the reported variables.

An online survey was shared with individuals from three organisations delivering digital transformation projects. The three organisations are all within the financial services sector in South Africa.

The employees providing feedback were limited to those directly involved in or supporting the implementation of digital projects/journeys that are managed centrally. These employees held positions as Project Sponsors, Project Owners, Accountable Executives, Project Managers and Subject Matter Experts. The roles were selected as they have sound exposure to digital transformation practices and processes which, will support more accurate results for the study.

4.2 Sample demographics

Organisation 1 primarily offers banking products, including loans, deposits, and investment products. Their service offering is extended beyond South Africa, but the feedback was only solicited from 10 business units serving the South African market. The business units included fixed and non-fixed asset lending products, consumer banking products, long and short-term insurance products, customer value and experience management, service enablement, payments, and fraud strategy departments.

Organisation 2 is a service offering business focused on providing back office operational and supplementary services to specific insurance product providers within South Africa. Feedback was solicited from six divisions focused on

providing claims operational and management services support as well as management of the service providers within the value chain.

Organisation 3 is a fintech-focused business that offers lower-end lending and lifestyle products via its digital platforms. The three business units included in the survey focus on managing the organisations various digital platforms including their in-house built application (app).

A total of 272 responses were received of which 174 were noted as usable for this study due to missing values on the responses not used.

Of the 174 respondents used, the majority were from Organisation 1 with 80 participants, followed by Organisation 2, with 61 participants and Organisation 3, with 31 participants.

The following section of the report focuses on the various descriptive statistics gathered from the respondents for each organisation. The feedback provides insight at a respondent and organisation level.

4.2.1 *Age*

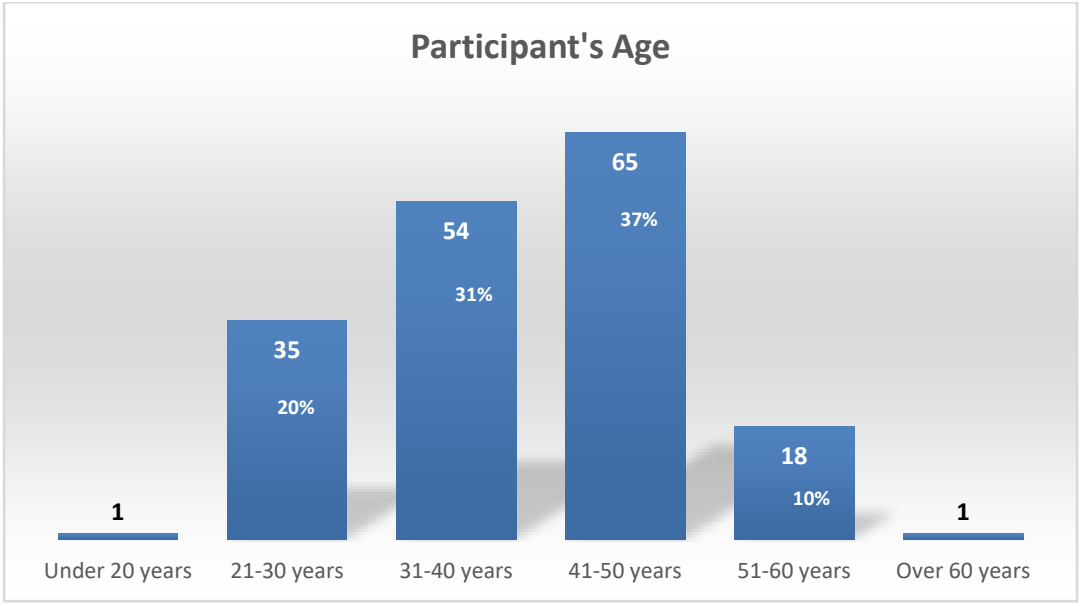

Figure 4. 1: Overall age of respondents

Participant ages and the highest category of respondents varied across all three organisations. However, on average, 37% of the respondents were between 41 and 50, followed by 31% between 31 and 40.

Age				
	Org1 (n = 81)	**Org2** (n = 61)	**Org3** (n=32)	**Total** (174)
Under 20 years	1(100%)	0(0%)	0(0%)	1(100%)
	1%	0%	0%	
21-30 years	15(43%)	17(49%)	3(9%)	35(100%)
	19%	28%	9%	
31-40 years	24(44%)	20(37%)	10(19%)	54(100%)
	30%	33%	31%	
41-50 years	33(51%)	15(23%)	17(26%)	65(100%)
	41%	25%	53%	
51-60 years	8(44%)	8(44%)	2(11%)	18(100%)
	10%	13%	6%	
Over 60 years	0(0%)	1(100%)	0(0%)	1(100%)
	0%	2%	0%	

Table 4.1: Age of respondents per organisation

Organisation 1 was dominated by respondents who are aged between 41 and 50 (33), followed by those aged between 31 and 40 (24) and 21 and 30 (15). Organisation 2 was dominated by respondents aged between 31 and 40 (20) followed by respondents aged between 21 and 30 (17). The smallest, Organisation 3 was dominated by respondents aged between 41 and 50 years (17), followed by respondents aged between 31 and 40 (10).

4.2.2 *Gender*

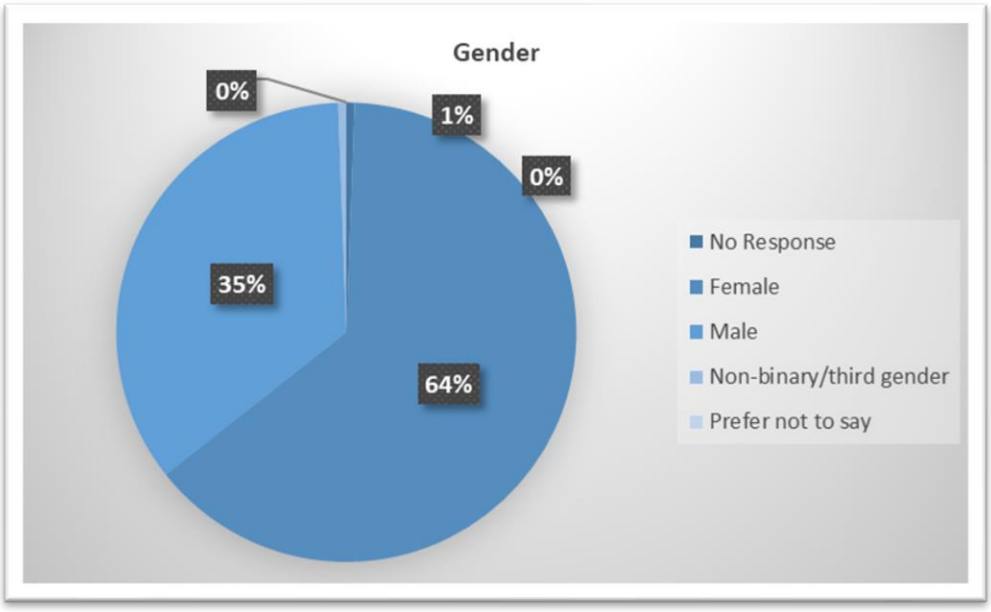

Figure 4. 2: Overall gender of respondents

Overall, the majority (64%) of the respondents were female.

The same observation was made at an individual organisation level though Organisation 3 had an even distribution of males and females as compared to Organisations 1 and 3 which were both dominated by females.

Gender				
	Org1 (n = 81)	**Org2** (n = 61)	**Org3** (n= 32)	**Total** (174)
No Response	0(0%)	1(100%)	0(0%)	1(100%)
	0%	2%	0%	
Female	57(51%)	38(34 %)	16(14%)	111(100%)
	70%	62%	50%	
Male	23(38%)	22(36%)	16(26%)	61(100%)
	28%	36%	50%	
Non-binary/third gender	1(100%)	0(0%)	0(0%)	1(100%)
	1%	0%	0%	
Prefer not to say	0(0%)	0(0%)	0(0%)	0(0%)
	0%	0%	0%	

Table 4.2: Gender of respondents per organisation

4.2.3 *Tenure of employment*

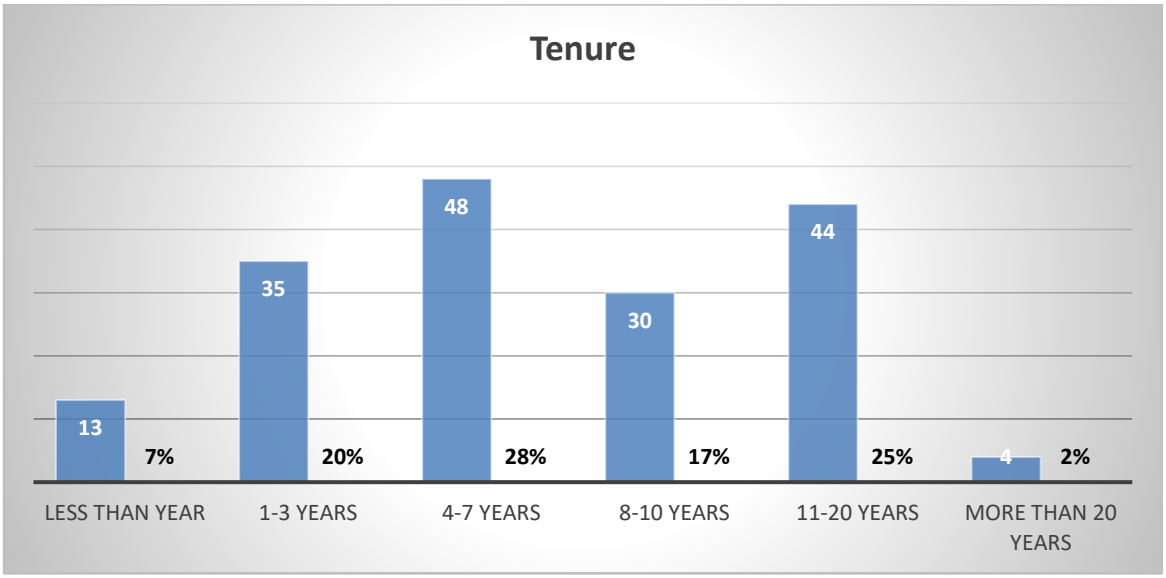

Figure 4.3: Overall tenure of respondents

The majority of the respondents across the three organisations were employed for 4 to 7 years by the organisation they responded under followed by those employed for 11 to 20 years.

Tenure				
	Org1 (n = 81)	**Org2** (n = 61)	**Org3** (n= 32)	**Total** 174
Less than a year	6 (46%)	5 (38%)	2 (15%)	13 (100%)
	7%	8%	6%	
1 - 3 years	19 (54%)	11 (31%)	5 (14%)	35 (100%)
	23%	18%	16%	
4 – 7 years	23 (48%)	15 (31%)	10 (21%)	48 (100%)
	28%	25%	31%	
8- 10 years	15 (50%)	11 (37%)	4 (13%)	30 (100%)
	19%	18%	13%	
11 - 20 years	16 (36%)	18 (41%)	10 (23%)	44 (100%)
	20%	30%	31%	
More than 20 years	2 (50%)	1 (25%)	1 (25%)	4 (100%)
	2%	2%	3%	

Table 4.3: Tenure of respondents per organisation

Responses for Organisation 1 noted that the largest number of respondents have been in employment by company for 4 to 7 years, followed by those employed between 1 to 3 years.

Organisations 2 noted the largest number of responses from employees in tenure between 11 and 20 years followed by those serving between 4 and 7 years. Organisation 3, on the other hand, noted the highest responses from employees serving both 4 to 7 years and 11 to 20 years.

4.2.4 *Role/Position*

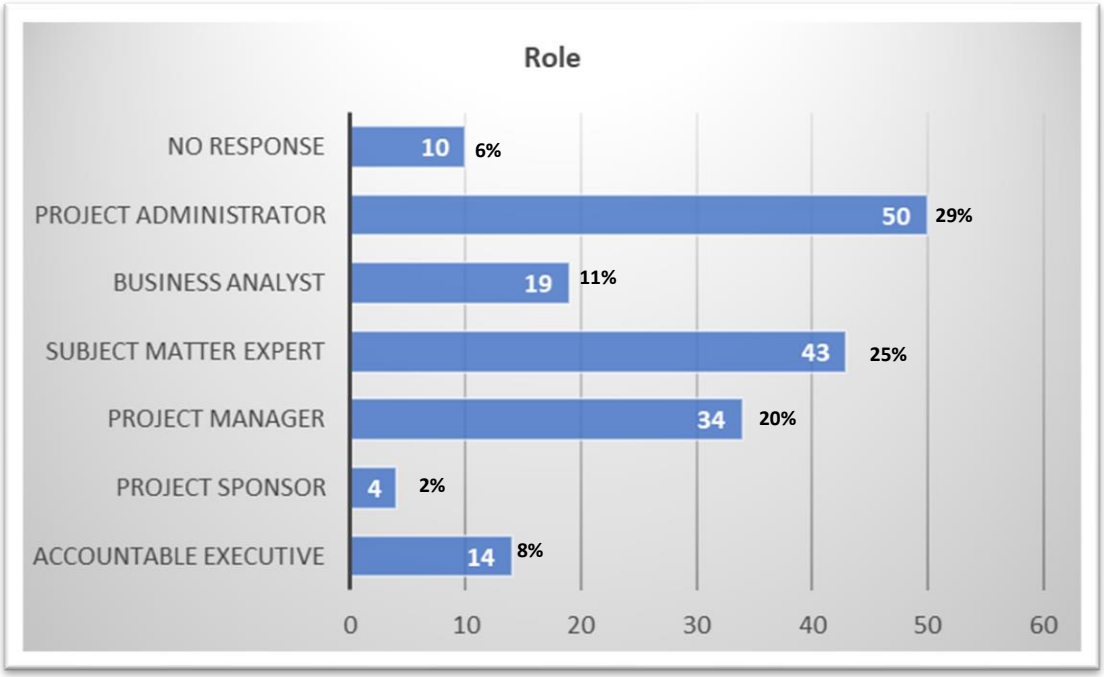

Figure 4.4: Roles of respondents

Overall, the Project Administrators and Subject Matter Experts dominated the sample.

Roles/Positions				
	Org1 (n = 81)	**Org2** (n = 61)	**Org3** (n= 32)	**Total** -174
Accountable Executive	11 (79%)	2 (14%)	1 (7%)	14 (100%)
	14%	3%	3%	
Project Sponsor	2 (50%)	1 (25%)	1 (25%)	4 (100%)

	2%	2%	3%	
Project Manager	12 (35%)	11 (32%)	11 (32%)	34 (100%)
	15%	18%	34%	
Subject Matter Expert	22 (51%)	11 (26%)	10 (23%)	43 (100%)
	27%	18%	31%	
Business Analyst	10 (53%)	2 (11%)	7 (37%)	19 (100%)
	12%	3%	22%	
Project Administrator	18 (36%)	31 (62%)	1 (2%)	50 (100%)
	22%	51%	3%	
No Response	6 (60%)	3 (30%)	1 (10%)	10 (100%)
	7%	5%	3%	

Table 4.4: Respondent roles per organisation

Organisation 3 was dominated by Project Managers followed by Subject Matter Experts. Organisation 2 was dominated by Project Administrators followed by Project Managers and Subject Matter Experts and Organisation 1 was dominated by Subject Matter Experts and Project Administrators.

4.2.5 *Education and qualification*

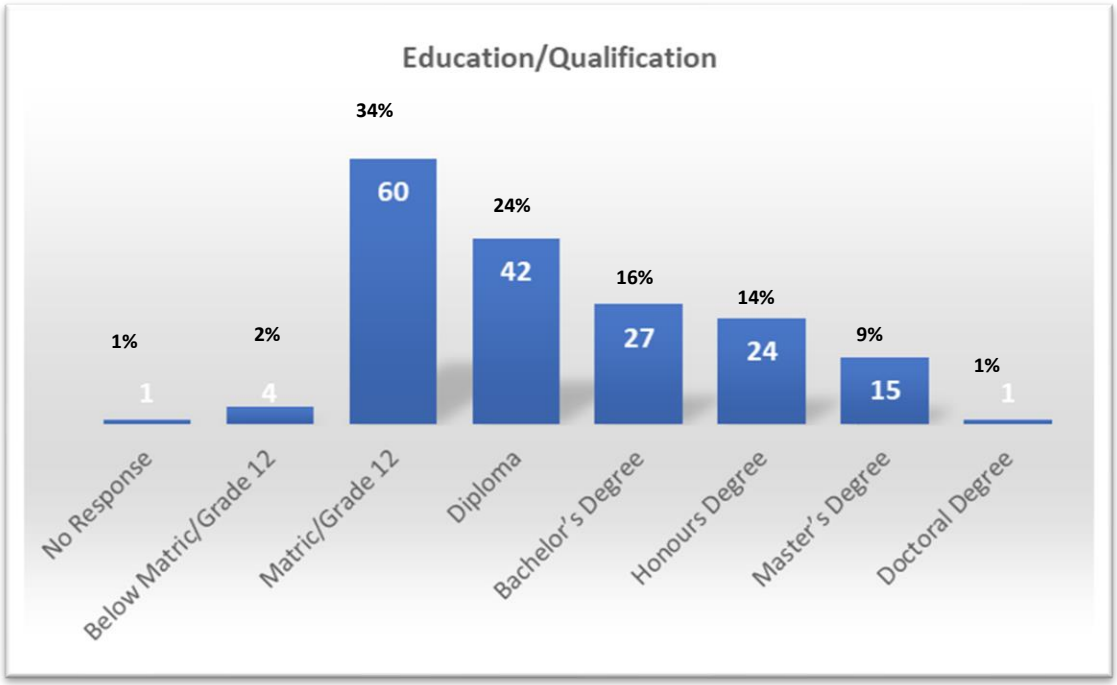

Figure 4.5: Overall education levels

Most of the respondents have matric, or grade 12, as the highest level of education, followed by a diploma.

	Education/Qualification			
	Org1	**Org2**	**Org3**	**Total**
	(n = 81)	(n = 61)	(n= 32)	-174
No Response	0 (0%)	1 (100%)	0 (0%)	1 (100%)
	0%	2%	0%	
Below Matric/Grade 12	1 (25%)	3 (75%)	0 (0%)	4 (100%)
	1%	5%	0%	
Matric/Grade 12	26 (43%)	31 (52%)	3 (5%)	60 (100%)
	32%	51%	9%	
Diploma	15 (36%)	18 (43%)	9 (21%)	42 (100%)
	19%	30%	28%	
Bachelor's Degree	14 (52%)	7 (26%)	6 (22%)	27 (100%)
	17%	11%	19%	
Honours Degree	15 (63%)	1 (4%)	8 (33%)	24 (100%)
	19%	2%	25%	
Master's Degree	9 (60%)	0 (0%)	6 (40%)	15 (100%)
	11%	0%	19%	
Doctoral Degree	1 (100%)	0 (0%)	0 (0%)	1 (100%)
	1%	0%	0%	

Table 4.5: Education levels per organisation

Fifty-two per cent of the respondents with matric, or grade 12, as the highest level of education are in Organisation 2, followed by diplomas in both Organisation 1 and 2. Organisations 1 and 3 also had the highest number of respondents with Bachelor's degrees as the highest level of education.

4.3 Descriptive statistics of variables

The research instrument was designed using a five-point Likert scale and focused on three key aspects: digital transformation, transformational leadership, and digital leadership. The Likert scale measure responses from 5 (strongly agree) to 1 (strongly disagree).

4.3.1 *Digital transformation*

Proposed questions from the article presented by Sánchez (2017) were used to assess the digital transformation component.

Digital transformation was assessed against five sub constructs: *strategy definition, platforms and partners, resources and capabilities, data management and general*. The findings per sub-construct are noted below.

Data management noted the lowest mean score of 1.923 and a standard deviation of 0.806, while the *strategy definition* sub-construct registered the highest mean score of 4.544 and a standard deviation of 0.713. Table 4.6 below lists the descriptive statistics for digital transformation.

Skewness and kurtosis were also used to analyse the data. The measure of symmetry or the lack thereof is referred to as skewness. Data that looks the same on each side of a central point is categorised as symmetrical data. Measuring the peak or flatness of data relative to the normal distribution curve is known as kurtosis. Values between -1 and +1 for skewness and kurtosis are recommended for conducting parametric tests (Howell, 2008). The skewness measure for digital transformation is -0.234 indicating a moderately negative skewness. The kurtosis is 0.547 which is less than 3 and is known as a platykurtic.

Descriptive statistics							
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**	**Skewness**	**Kurtosis**
Strategy definition	176	1.00	5.00	4.5440	0.71325	-2.290	5.838
Platforms and partners	176	1.00	5.00	4.2547	0.76862	-1.273	1.861
Resources and capabilities	176	1.00	5.00	4.2670	0.80160	-1.371	2.068
Data management	176	1.00	5.00	1.9226	0.80628	0.817	0.517
General	175	1.00	5.00	2.7226	1.15233	0.318	-0.762
Digital transformation	176	1.78	5.00	3.8578	0.56181	-0.234	0.547

Table 4.6: Digital transformation descriptive analysis

4.3.1 *Transformational leadership*

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Idealised influence	175	1.00	5.00	1.9886	0.97340	0.907	0.276
Individual consideration	176	1.00	5.00	2.1600	1.02498	0.797	0.195
Inspirational motivation	176	1.00	5.00	1.9934	0.94925	0.965	0.585
Intellectual stimulation	176	1.00	5.00	2.0000	0.96675	0.965	0.496
Transformational leadership	176	1.00	5.00	3.9638	0.92671	-0.853	0.360

Table 4.7: Transformational leadership descriptive analysis

To assess transformational leadership, Avolio, Bass and Jung's (1995) multifactor leadership questionnaire, validated by Penava and Šehić (2014) and Prakasa, Raharjo, and Wiratama (2020,) was adopted.

As recorded in Table 4.7 above, the mean scores of the four sub-constructs were closely aligned with the *individual consideration* sub-construct noting the highest mean score of 2.160 and the idealised influence sub construct scoring the lowest of mean score of 1.993.

The skewness measure for transformational leadership is -0.853 indicating a moderately negative skewness with a platykurtic kurtosis of 0.360.

4.3.1 *Digital leadership*

Table 4.8 below references the descriptive statistics for the digital leadership construct. The proposed questions from Mihardjo, Sasmoko, Alamsjah and Elidjen (2019) was used to assess digital leadership.

The sub-construct of *collaboration* noted the highest mean score of 2.052 and the *global visionary* sub construct noted the lowest mean score of 1.899.

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Creativity	176	1.00	5.00	1.9730	0.86723	0.907	0.661
Profound	175	1.00	5.00	2.0333	0.88395	0.745	0.205
Global visionary	175	1.00	5.00	1.8986	0.85311	0.892	0.644
Collaboration	175	1.00	5.00	2.0519	0.90230	0.698	0.064
Thought leader	176	1.00	5.00	1.9347	0.86064	0.712	0.005
Inquisitive	175	1.00	5.00	1.9690	0.86466	0.735	0.099
Digital leadership	176	1.00	5.00	4.0233	0.80889	-0.737	0.264

Table 4.8: Digital leadership descriptive analysis

4.4 Reliability analysis

Table 4.9 below provides a summary of the constructs' reliability using the Cronbach's alpha as a measuring instrument.

As noted in Chapter 3 above, the Cronbach alpha values were tested using a scale provided by Taylor (n.d.) as follows:

- Values less than 0.6 were taken as poor internal consistency
- Values between 0.7 and 0.79 were taken as fair internal consistency
- Values between 0.8 and 0.89 were taken as good internal consistency
- Values between 0.9 and 0.99 were taken as strong internal consistency

Constructs	N	Mean	Std. Deviation	Cronbach's Alpha	Remarks
Strategy definition	176	4.5440	0.71325	0.893	Good
Platforms and partners	176	4.2547	0.76862	0.826	Good
Resources and capabilities	176	4.2670	0.80160	0.792	Fair
Data management	176	1.9226	0.80628	0.938	Strong
General	175	2.7226	1.15233	0.927	Strong
Digital transformation	176	3.8578	0.56181		
Idealised influence	175	1.9886	0.97340	0.883	Good
Individual consideration	176	2.1600	1.02498	0.856	Good
Inspirational motivation	176	1.9934	0.94925	0.868	Good
Intellectual stimulation	176	2.0000	0.96675	0.892	Good
Transformational leadership	176	3.9638	0.92671		
Creativity	176	1.9730	0.86723	0.902	Strong
Profound	175	2.0333	0.88395	0.889	Good
Global visionary	175	1.8986	0.85311	0.935	Strong
Collaboration	175	2.0519	0.90230	0.913	Strong
Thought leader	176	1.9347	0.86064	0.908	Strong
Inquisitive	175	1.9690	0.86466	0.897	Good
Digital leadership	176	4.0233	0.80889		

Table 4.9: Reliability analysis

A generally accepted rule is that an α of 0.6-0.7 indicates an acceptable level of reliability, and 0.8 or greater is a very good level. However, values higher than 0.95 are not necessarily good since they might indicate redundancy.

The Cronbach alpha values for the sub-constructs range between 0,792 and 0,938, indicating acceptable/fair to good levels of consistency for the respective sub-constructs.

4.5 Inferential statistics

The following section assesses the impact of gender on the digital transformation journey and the relationships between the constructs of digital transformation, transformational leadership, and digital leadership.

4.5.1 *T-Test (Gender)*

An independent samples t-test was conducted to determine if the mean scores between male and female respondents were equal. Given the varied sizes of the gender groups, it is assumed that the population variances of the dependent variable must be equal within all groups.

As noted in Table 4.10 below, there are no statistical differences between the means scores of the gender groups at p>0.05.

Group Statistics					
	Please indicate your gender	**N**	**Mean**	**Std. deviation**	**Std. error mean**
Digital transformation	Male	62	3.7447	.64991	.08254
	Female	112	3.9162	.50394	.04762
Transformational leadership	Male	62	3.9892	.94335	.11981
	Female	112	3.9527	.92458	.08736
Digital leadership	Male	62	4.0149	.78903	.10021

	Female	112	4.0262	.82656	.07810

Table 4.10: Group statistics

Independent samples test											
		Levene's test for equality of variances		t-test for equality of means							
						Significance				95% Confidence interval of the difference	
		F	Sig.	t	df	One-sided p	Two-sided p	Mean difference	Std. error difference	Lower	Upper
Digital transformation	Equal variances assumed	3.783	.053	-1.935	172	.027	.055	-.17154	.08866	-.34654	.00346
	Equal variances not assumed			-1.800	102.144	.037	.075	-.17154	.09529	-.36054	.01746
Transformational leadership	Equal variances assumed	.047	.829	.248	172	.402	.805	.03650	.14742	-.25448	.32748
	Equal variances not assumed			.246	123.875	.403	.806	.03650	.14828	-.25698	.32999
Digital leadership	Equal variances assumed	.005	.942	-.088	172	.465	.930	-.01137	.12877	-.26553	.24279
	Equal variances not assumed			-.089	131.047	.464	.929	-.01137	.12705	-.26270	.23996

Table 4.11: Independent samples test

4.5.2 *Correlation analysis*

The summary of the primary constructs is provided in Table 4.12 below.

As reflected in the table, all correlations at a main construct level are positive with the correlation between digital leadership (independent variable) and digital transformation (dependent variable) being higher at 0,381 compared to the correlation between transformational leadership (independent variable) and digital transformation (dependent variable) of 0,250.

Most interesting however, is that the correlation between the two independent variables, digital leadership and transformational leadership is the highest at 0,769 indicating a very strong relationship between these constructs.

The correlations at a sub-construct level differ from the main construct level. In future studies, they may require further analysis to ascertain the relationship between the various sub-constructs specifically those sub-constructs that note a negative correlation. (Annexure A)

Table 4.12: Correlation analysis

Constructs		Digital transformation	Transformational leadership	Digital leadership
Digital transformation	Correlation coefficient	--		
	Sig. (2-tailed)			
	N	176		
Transformational leadership	Correlation coefficient	0.250**	--	
	Sig. (2-tailed)	0.001		
	N	176	176	
Digital leadership	Correlation coefficient	0.381**	0.769**	--
	Sig. (2-tailed)	0.000	0.000	
	N	176	176	176

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.5.3 *Regression Analysis*

Linear regression was conducted to determine if a relationship existed between digital transformation (dependent variable) and digital leadership and transformational leadership (independent variables).

The first test conducted confirms the significance of the regression model. Once the significance is established and the variance for the significant model is established, the beta coefficient is reported.

ANOVA[a]						
Model		**Sum of squares**	**df**	**Mean square**	**F**	**Sig.**
1	Regression	10.791	2	5.396	23.763	<,001[b]
	Residual	38.828	171	.227		
	Total	49.619	173			

a. Predictors: (Constant), Digital leadership, Transformational leadership

b. Dependent Variable: Digital transformation

Table 4.133: Anova table

Table 4.13 above (Anova table) reflects the p < 0,01 and F = 23,763, signifying that the regression model is statistically significant in predicting the dependent variable, digital transformation.

Model summary[b]					
Model	**R**	**R square**	**Adjusted R square**	**Std. error of the estimate**	**Durbin-Watson**
1	.466[a]	.217	.208	.47651	.005

a. Predictors: (Constant), Digital leadership, Transformational leadership

b. Dependent Variable: Digital transformation

Table 4.14: Correlation analysis

As noted in Table 4.14 above, the correlation coefficient indicates a correlation between digital transformation and the predictors i.e., digital leadership and transformational leadership (R-value = 0.466). The coefficient of determination (R^2 value) indicates the variance that the predictors have on the dependent variable. As such, based on the values listed, 21,7% of the variance in the dependent variable, digital transformation, can be predicted from the independent variables. The Adjusted R^2 is used to provide a more realistic R^2 estimate. The model explains 20,8% of the variance.

Coefficients[a]							
	Unstandardized coefficients		**Standardised coefficients**			**Collinearity statistics**	
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**	**Tolerance**	VIF
(Constant)	2.707	.194		13.988	<,001		
Transformational leadership	-.134	.060	-.226	-2.228	.027	.446	2.243
Digital leadership	.418	.070	.609	6.014	<,001	.446	2.243

Dependent Variable: DIGITAL TRANSFORMATION

Table 4.155: Collinearity diagnostics

Table 4.15 above confirms that transformational leadership and digital leadership contribute statistically significantly to the model and are noted as significant predictors of digital transformation as reflected by the significance ($p<0,05$) value.

As noted in Chapter 3, a regression statistic tool was used to determine the relationship between digital transformation (dependent variable), and digital and transformational leadership predictors (independent variables). The regression equation illustrates the relationship between the predictor and dependent variables and has the form of:

$$\mathbf{y = b_0 + b_1x_1}$$

- y = Digital transformation
- x_1 = Digital leadership
- b_0 = The intercept or the constant
- b_1 = The digital leadership regression coefficient

Based on the b-coefficients,

Digital transformation = 2,707 + 0,418(digital leadership) – 0,134(transformational leadership)

Both constructs influence digital transformation, but digital leadership has a positive influence while transformational leadership is seen to have a negative influence on digital transformation. This finding means digital leadership is seen to have a positive 0.418 impact or contribution, to digital transformation compared to the negative 0.134 contribution or impact, from transformational leadership.

Digital leadership is a stronger predictor (β = 0,609) of digital transformation than transformational leadership (β = -0,226), negatively impacting digital transformation.

4.6 Summary of the results/findings

This chapter addresses the results and findings gleaned from the data analysis gathered from the complete surveys. The descriptive statistics analysis covered the various demographic aspects of the participants that were surveyed, including their age, gender, tenure of employment and education levels. It also analysed the various constructs included in the survey and the participants' responses to each.

Furthermore, correlations were reported between digital transformation, transformational leadership, and digital leadership, and inferential statics between the variables were analysed and discussed.

The next chapter focuses on analysing, interpreting, and discussing the results reported in this chapter and discussing and drawing conclusions on the relationship between digital transformation, transformational leadership, and digital leadership. Furthermore,

the outcomes of the critical three hypothesise examined in this paper will be analysed and discussed.

CHAPTER 5. DISCUSSION OF THE RESULTS OR FINDINGS

5.1 Introduction

The research results are discussed in this chapter and the findings are reviewed against the study's objectives as outlined in Chapter 1.

Further, the practical implications of the findings are outlined based on the results presented in Chapter 4.

5.2 Demographics

The demographic information for the sampled respondents was analysed according to their age, gender, tenure of employment, roles held and educational qualifications.

As noted in Figure 4.1, 65 respondents across all three organisations sampled were between the ages of 41 and 50. From a gender perspective, most (64%) of the respondents across the three organisations were female.

Most respondents across the three organisations were employed for 4 to 7 years by the organisation they responded under follwed by those employed for 11 to 20 years. Overall, the Project Administrators and Subject Matter Experts dominated the sample.

Finally, most respondents noted matric or grade 12, as the highest level of education (60), followed by a diploma (42).

5.3 Gender analysis

An independent samples t-test was conducted to determine if the mean scores between male and female respondents were equal. Given the varied sizes of the gender groups, it is assumed that the population variances of the dependent variable must be equal within all groups.

As reflected in Table 4.10, 36% of the respondents were male and 64% were female. The mean value for digital transformation is close with 3,747 for the males and 3,916 for the females. The mean values for the leadership components were much closer with transformational leadership for males at 3,989 and females (at 3,952). Mean values for digital leadership were also close at 4,015 for males and 4,026 for females.

5.4 Objective 1 (H1) - digital leadership is a positive contributor to delivering successful digital transformation journeys.

The study's first objective as noted in Chapter 1 was to analyse the impact of digital leadership on digital transformation journeys based on the hypothesis that digital leadership is a positive contributor to delivering successful digital transformation journeys. The proposed questions from Mihardjo, Sasmoko, Alamsjah and Elidjen (2019) were used to assess digital leadership, and the sub-constructs for the questionnaire included creativity, profound, global visionary, collaboration, thought leader and inquisitive.

Data included in Table 4.12 confirmed a positive correlation (0,381) at a main construct level between digital leadership (independent variable) and digital transformation (dependent variable). The correlations at a sub-construct level (Annexure A) differ from the main construct level. Further analysis to ascertain the relationship between the various sub- constructs, specifically those that note a negative correlation would glean great value in future studies.

Linear regression was conducted to determine if a relationship existed between digital transformation and digital leadership. As noted in Table 4.13, digital

leadership is seen to have a positive (0.418) impact or contribution to digital transformation confirming the hypothesis that digital leadership is a positive contributor to digital transformation journeys. Furthermore, digital leadership is noted as a strong predictor (β = 0,609) of digital transformation. This outcome is congruent with the findings from Sow and Aborbie (2018), which noted digital leadership's highly positive impact on transformation journeys.

The strong, positive relationship and impact that digital leadership has on digital transformation journeys were highlighted in all the literature reviewed, confirming the strong suitability of this leadership style when managing digital transformation journeys. However, the definition or sub-constructs of digital leadership is inconsistent across all literature reviewed highlighting the evident absence of a consistent definition and possibly a consistent understanding of digital leadership.

Table 4.8 noted the sub-construct of collaboration with the highest mean (2,052) followed by profound (2,033). Collaboration is a crucial attribute of digital leadership Harbani et al. (2021), Eberl and Drews (2021: 4), Eberl and Drews, (2021:4), Sağbaş, and Erdoğan (2022) and Promsri (2019). Encouraging people to embrace new challenges, respond proactively to consistent change and being able to guide organisations through uncertain futures are common qualities and traits highlighted by Kapure and Townsend (2021); Sağbaş, and Erdoğan (2022); Promsri (2019); Eberl and Drews, (2021:4) and Promsri (2019).

Lastly, from a reliability perspective, the alphas ranged from 0,935 to 0889 indicating a strong to a good level of reliability at a sub-construct level.

5.5 Objective 2 (H2) - Transformational leadership is a positive contributor to delivering successful digital transformation journeys.

The study's second objective was to analyse the impact of transformational leadership on the digital transformation journey based on the hypothesis that transformational leadership is a positive contributor to delivering successful digital transformation journeys.

Like the digital leadership construct, assessing the correlation data included in Table 4.12 confirmed a positive correlation between transformational leadership (independent variable) and digital transformation (dependent variable) of 0,250.

Using linear regression to determine the relationship between the dependent variable digital transformation and the independent variable of transformational leadership reflected very different results to those for the digital leadership variable. Transformational leadership is seen to have a negative 0,134 (β = -0,226) negative influence on digital transformation. This confirms that the hypothesis is not valid.

None of the articles reviewed noted a negative impact on digital transformation when using transformational leadership. The only reference to a possible negative impact at a sub construct level was noted in the study by Truter (2016). The study highlighted that while two transformational leadership behaviours, influence and individualised consideration have a positive effect on digital maturity, one transformational leadership behaviour, inspirational motivation, negatively affect digital maturity.

All other reviews highlighted the positive effects of adopting transformational leadership for digital transformation journeys. Bach and Sulíková (2021) further highlighted that digital leadership is a third variant of transformational or transactional leadership. However, they noted that digital leadership skills can be acquired, unlike transformational leadership.

The study by Mwita and Jonathan (2019) recommended that digital leaders adopt a transformational leadership style instead to ensure the success of the

transformation journey. This recommendation is contrary to the results reviewed for this research. It is strongly recommended that the sub-constructs for transformational leadership be reviewed to understand why transformational leadership negatively impacts digital transformation journeys.

5.6 Objective 3 (H3) - Digital leadership is a more positive contributor to delivering successful digital transformation journeys than transformational leadership.

The final objective of the study was to determine which leadership style between digital leadership and transformational leadership has a more significant impact on digital transformation journeys. The proposed hypothesis is that digital leadership contributes more positively to delivering to successful digital transformation journeys than transformational leadership.

Based on the outcomes of the regression analysis included in Chapter 4 above, both constructs influence digital transformation. However, digital leadership has a positive influence, while transformational leadership is seen to have a negative influence on digital transformation. This means that digital leadership is seen to have a positive 0.418 impact/contribution to digital transformation compared to the negative 0.134 contribution/impact from transformational leadership.

Digital transformation = 2,707 + 0,418(digital leadership) – 0,134(transformational leadership).

Based on this, the proposed hypothesis that digital leadership is a more positive contributor to digital transformation journeys is confirmed as accurate.

5.7 Conclusion

The key objective of this study was to understand the impact that leadership styles, specifically transformational and digital leadership styles, have on the successful outcome of digital transformation journeys.

Three main hypotheses were noted to reach this understanding.

1) Digital leadership is a positively contributes to delivering successful digital transformation journeys.

The study's findings confirmed that digital leadership is a positive contributor to digital transformation journeys. The literature reviewed supports the hypothesis that digital leadership is a positive contributor to successful digital transformation journeys. Despite this confirmation, the absence of a clear and concise agreed definition of digital leadership deems it a challenge to determine precisely what styles, traits and qualities are best suited to leading successful transformation journeys. Further understanding of the digital leadership sub-constructs would assist to drive a common understanding of what styles, traits and qualities drive digital leadership.

2) Transformational leadership is a positive contributor to delivering successful digital transformation journeys.

The second hypothesis was not confirmed as positive meaning that transformational leadership is noted as a negative contributor to digital transformation journeys. This outcome was noted as contrary to the literature reviewed as requires further exploration. This study focused on the overall transformational leadership aspects, but it is strongly recommended that the sub-constructs for transformational leadership be reviewed to understand why transformational leadership negatively impacts digital transformation journeys. The sub constructs of the transformational leadership construct should also be understood in the context of digital transformation journeys as opposed to being applied to general leadership aspects.

3) Digital leadership contributes more positively to successful digital transformation journeys than transformational leadership.

Digital leadership was confirmed as being a more positive contributor to delivering successful transformation journeys than transformational leadership. This outcome is aligned to the first and second hypothesise tested in this study

but could not be compared against existing literature as the two leadership styles have not been compared in similar studies.

CHAPTER 6. CONCLUSIONS and RECOMMENDATIONS

6.1 Introduction

This chapter summarises the findings for the key objectives of the research. The primary objective of this study was to understand the impact of leadership styles, specifically transformational leadership, and digital leadership on digital transformation journeys.

There was limited literature available that specifically compared digital leadership and transformational leadership styles and their respective impacts on digital transformation journeys. The literature consulted identified digital and transformational leadership styles as positive contributors to the digital transformation journey.

6.2 Conclusions regarding research objective 1 - Digital leadership is a positive contributor to delivering successful digital transformation journeys

The tests performed and discussed in Chapter 5 confirmed a positive relationship between digital leadership and digital transformation journeys indicating that digital leadership contributes positively to the successful outcomes of digital transformation journeys.

The outcome of this study is aligned with the outcomes of the studies reviewed. However, it is critical to note that the absence of a consistent definition of what digital leadership is and what traits and styles are attributed to the leadership style may be over-stating the results. More importantly, clearly, and consistently specifying the traits attributed to the digital leadership style will enable future studies to understand the impact of such traits more clearly on digital transformation journeys.

The second difference between this and other studies reviewed is that this study is grounded in a South African context and is limited to the financial services industry. The digital transformation journeys in other countries and other industries are likely to yield differing and varied results in the best leadership styles to be adopted when undertaking a digital transformation journey.

The study by Bach and Sulíková (2021) noted that digital leadership is a third variant of transformational or transactional leadership but unlike transformational leadership, digital leadership skills can be acquired. It further highlights the need to understand digital leadership to extract its maximum benefit clearly.

This study provides some insight and contribution to the body of knowledge regarding digital leadership and digital transformation journeys.

6.3 Conclusions regarding Research objective 2 - Transformational leadership is a positive contributor to delivering successful digital transformation journeys

The conclusion of the second objective was contrary to the outcomes of the literature review findings. Based on the study findings, while there is a relationship between transformational leadership and digital transformation, it was found that the relationship is a negative one. Ultimately, transformational leadership harm the digital transformation journey.

This deviation requires further insight as there could be several reasons, including the industry, country, digital maturity level of the organisations surveyed, and understanding of the underlying sub constructs of transformational leadership etc.

The study by Truter (2016) highlighted that while two transformational leadership behaviours, influence and individualised consideration have a positive effect on digital maturity, one transformational leadership behaviour, inspirational motivation, negatively affect digital maturity. It suggests that, like the recommendation noted under digital leadership, it would be insightful to explore

the impacts of the underlying sub-constructs of transformational leadership to better understand the impacts of each of these on the overall digital transformation journey.

Further insights could be gained into understanding when specific leadership styles and traits are best applied in the digital transformation journey. Philip (2021) noted that transformational leader behaviours of creating a new vision and innovative ideas and motivating and providing a supportive climate were best for addressing structural and behavioural changes respectively during planned transformation journeys. Motivating, and providing a supportive climate was identified as appropriate for forced transformation to address structural and behavioural changes.

6.4 Conclusions regarding Research objective 3 - Digital leadership is a more positive contributor to delivering successful digital transformation journeys than transformational leadership.

The final objective of the study was to determine which leadership style between digital leadership and transformational leadership has a more significant impact on digital transformation journeys.

Based on the outcomes of the regression analysis included in Chapter 4 above, digital leadership was found to have a more positive influence. In contrast, transformational leadership is seen to have a negative influence on digital transformation.

While the conclusion may seem clear that digital leadership is a better fit for achieving successful outcomes in digital transformation journeys, the contrary outcomes to existing literature and studies implores the need for further exploration and understanding of leadership traits, styles and attributes that are best suited to supporting the positive outcome of digital transformation journeys. Research findings supported the view that leadership style significantly impacts the transformation of organisations. In addition, input from employees and their

involvement were also noted as a critical contributor to the change effort (Sow and Aborbie (2018) and Muna, and Judiarni (2021)) thus supporting the need for further exploration.

6.5 Recommendations

Digital transformation initiatives are often unsuccessful, and leadership is a key to transformation success (Porfirio et al. (2020) and Weber et al. (2022)). Kapure and Townsend (2021) highlight that understanding leadership and encouraging people to embrace new challenges is imperative for existence.

The literature reviewed confirmed that leadership style plays a significant role in transforming organisations. (Sow and Aborbie (2018) and Muna, and Judiarni (2021)). The literature also supported the adoption of digital leadership and transformational leadership styles and traits to support a successful digital transformation journey.

The outcomes of this study provided a different result and confirmed that digital leadership is a more positive contributor to digital transformation journey when compared to transformational leadership. This contradiction to existing literature reviewed implores the need for further exploration and understanding of leadership traits, styles and attributes that are best suited to supporting the positive outcome of digital transformation journeys.

Great benefits will be gleaned from further studies into leadership and its link to successful digital transformation journeys, particularly in this fast-moving digital transformation space. Some experts advise organisations to take a bold approach and replace leaders who do not see and support technology as a tool for shaping the organisation's strategy (Eastwood, 2021). Aligning to such advice without fully understanding the leadership traits and styles best suited to digital transformation journeys may be more harmful than helpful to organisations.

To succeed, people must be able to learn, unlearn and re-learn continually (Kapure and Townsend (2021)). They conclude that leaders must develop new skills to guide their organisation into the uncertain future effectively.

The outcome of such studies may be the creation and recognition of a totally new leadership category, or it may be the consolidation of existing leadership theories. Either way, further exploration and understanding of leadership traits, styles and attributes that are best suited to supporting the positive outcome of digital transformation journeys is imperative to gain clearer insight into the leadership impacts on digital transformations if organisations and society are to gain greater benefits from Industry 4.0 faster.

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APPENDIX A – Correlation Analysis

Correlations																			
	Constructs		**Strategy Definition**	**Platforms and Partners**	**Resources and Capabilities**	**Data Management**	**General**	**Digital Transformation**	**Transformational Leadership**	**Idealised Influence**	**Individual consideration**	**Inspirational motivation**	**Intellectual stimulation**	**Digital Leadership**	**Creativity**	**Profound**	**Global Visionary**	**Collaboration**	**Thought leader**	**Inquisitive**
Spearman's rho	Strategy Definition	Correlation Coefficient	--																
		Sig. (2-tailed)																	
		N	176																
	Platforms and Partners	Correlation Coefficient	.695**	--															
		Sig. (2-tailed)	0																
		N	176	176															
	Resources and Capabilities	Correlation Coefficient	.558**	.696**	--														
		Sig. (2-tailed)	0	0															
		N	176	176	176														
	Data Management	Correlation Coefficient	-.556**	-.697**	-.768**	--													
		Sig. (2-tailed)	0	0	0														
		N	176	176	176	176													
	General	Correlation Coefficient	-.184*	-0.116	-.154*	0.108	--												
		Sig. (2-tailed)	0.015	0.127	0.041	0.153													
		N	175	175	175	175	175												
	Digital Transformation	Correlation Coefficient	.574**	.696**	.700**	-.779**	.394**	--											
		Sig. (2-tailed)	0	0	0	0	0												
		N	176	176	176	176	175	176											
	Transformational Leadership	Correlation Coefficient	.367**	.440**	.399**	-.406**	-.314**	.250**	--										
		Sig. (2-tailed)	0	0	0	0	0	0.001											
		N	176	176	176	176	175	176	176										

	Idealised Influence	Correlation Coefficient	-.358**	-.381**	-.358**	.360**	.285**	-.225**	-.927**	--									
		Sig. (2-tailed)	0	0	0	0	0	0.003	0										
		N	175	175	175	175	174	175	175	175									
	Individual consideration	Correlation Coefficient	-.353**	-.441**	-.399**	.397**	.316**	-.243**	-.949**	.842**	--								
		Sig. (2-tailed)	0	0	0	0	0	0.001	0	0									
		N	176	176	176	176	175	176	176	175	176								
	Inspirational motivation	Correlation Coefficient	-.355**	-.438**	-.411**	.426**	.317**	-.259**	-.970**	.885**	.909**	--							
		Sig. (2-tailed)	0	0	0	0	0	0.001	0	0	0								
		N	176	176	176	176	175	176	176	175	176	176							
	Intellectual stimulation	Correlation Coefficient	-.331**	-.424**	-.362**	.390**	.282**	-.236**	-.935**	.827**	.857**	.905**	--						
		Sig. (2-tailed)	0	0	0	0	0	0.002	0	0	0	0							
		N	176	176	176	176	175	176	176	175	176	176	176						
	Digital Leadership	Correlation Coefficient	.520**	.624**	.541**	-.571**	-.370**	.381**	.769**	-.658**	-.752**	-.771**	-.715**	--					
		Sig. (2-tailed)	0	0	0	0	0	0	0	0	0	0	0						
		N	176	176	176	176	175	176	176	175	176	176	176	176					
	Creativity	Correlation Coefficient	-.436**	-.527**	-.495**	.543**	.330**	-.359**	-.689**	.594**	.685**	.697**	.641**	-.902**	--				
		Sig. (2-tailed)	0	0	0	0	0	0	0	0	0	0	0	0					
		N	176	176	176	176	175	176	176	175	176	176	176	176	176				
	Profound	Correlation Coefficient	-.485**	-.564**	-.537**	.519**	.357**	-.341**	-.703**	.618**	.690**	.719**	.637**	-.936**	.839**	--			
		Sig. (2-tailed)	0	0	0	0	0	0	0	0	0	0	0	0	0				
		N	175	175	175	175	174	175	175	175	175	175	175	175	175	175			
	Global Visionary	Correlation Coefficient	-.476**	-.643**	-.524**	.541**	.376**	-.361**	-.696**	.587**	.671**	.696**	.662**	-.932**	.800**	.864**	--		
		Sig. (2-tailed)	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
		N	175	175	175	175	174	175	175	174	175	175	175	175	175	174	175		
	Collaboration	Correlation Coefficient	-.513**	-.583**	-.497**	.508**	.358**	-.340**	-.727**	.621**	.707**	.724**	.655**	-.938**	.819**	.861**	.865**	--	
		Sig. (2-tailed)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

		N	175	175	175	175	174	175	175	174	175	175	175	175	175	174	175	175		
	Thought leader	Correlation Coefficient	-.510**	-.619**	-.505**	.563**	.337**	-.391**	-.706**	.594**	.679**	.703**	.688**	-.924**	.788**	.833**	.844**	.842**	--	
		Sig. (2-tailed)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
		N	176	176	176	176	175	176	176	175	176	176	176	176	176	175	175	175	176	
	Inquisitive	Correlation Coefficient	-.498**	-.584**	-.508**	.549**	.313**	-.387**	-.761**	.650**	.741**	.766**	.729**	-.931**	.817**	.825**	.850**	.854**	.887**	--
		Sig. (2-tailed)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		N	175	175	175	175	174	175	175	175	175	175	175	175	175	175	174	174	175	175

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX B - Research Instrument

SECTION 1 - Demographics

Please indicate your age			
1. Under 20 years		4. 41-50	
2. 21-30		5. 51-60	
3 31-40		6.Over 60	

Please indicate your gender					
1. Female		2. Male		3. Other	

What is your current level within the organization			
1. Group Executive		5. Management	
2. General Manager		6.Professional	
3. Senior management		7.Administration	
4. Middle Management			

What is your highest qualification?			
1. Below matric		5.Honours Degree	
2. Matric		6.Master's Degree	
3. Diploma		7.Doctoral Degree	
5. Bachelor's Degree			

Please indicate which division you belong to			
1.Org1 - Lending – Home		11. Org2 - DG – BU1	
2.Org1 - Lending - Vehicles		12. Org2 - DG – BU2	
3.Org1 - Insurance - Life		13. Org2 - DG – BU3	
4. Org1 - Insurance – Short Term		14. Org2 - DG – BU4	
5. Org1 - Customer Value Management		15. Org3 - V Digital Channels – BU1	
6. Org1 - Consumer Product		16. Org3 - V Digital Channels – BU2	
7. Org1 - Physical Channels		17. Org3 - V Digital Channels – BU3	
8. Org1 - Voice & Service Enablement		18. Other	
9. Org1 - Payments			
10. Org1 - Fraud Strategy			

Please indicate your level from your Head of Department			
1.Direct Report		5.Three levels	
2.One level		6.Four levels	
3.Two levels		7.More than four levels	
4.Three levels			

Please indicate for how long your Head of Department has been in a leadership position within the organization			
1.Less than 2 years		4.9-10 years	
2.2-4 years		5.More than 10 years	
3.5-8 years			

SECTION 2 - Part A - Digital Transformation

(adopted from Sánchez, Marisa A. (2017))

Below are several statements that relate to prevalence of digital transformation practices within the organisation.
Two scales were adopted by each section. The scales are depicted in the table below:

Score	Scale 1	Scale 2
1	Strongly Agree	Great Extent
2	Agree	Medium Extent
3	Strongly Disagree	Low Extent
4	Disagree	Not at all

Statements	Answer
Strategy Definition (Use scale 1)	
1. Do you agree that the following are part of your organization's strategy? - Improve customer experience - Innovation - Decision making - Efficiency	
Platform and partners (Use scale 2)	
2. To what extent your value proposition depends on new ways of collaborationwith stakeholders (e.g. partners, suppliers, consumers, competitors)?	
3. To what extent your organization is vertically integrated with suppliers and customers?	
Use scale 1	
4. To what extent does your company know about their end customer's goals?	

Resources & capabilities (use scale 1)	
5.1. My organisation is using digital technologies (social networks, mobile, analytics and cloud computing).	
5.2. My organisation is working in integrating digital technologies (social networks, mobile, analytics and cloud computing).	
5.3. My organisation monitors customer needs and behaviour.	
5.4. My organisation is able to respond to threats and opportunities better than our competitors	
Data management (use scale 1)	
6.1. In my organization our senior executives regularly consider the opportunities that data analytics (data mining, OLAP, Big Data) might bring to our business.	
6.2. In my organization we integrate data from multiple internal sources into a data warehouse for easy access.	
6.3. In my organization we integrate external data with internal to facilitate high-value analysis of our business environment.	
6.4. In my organization we collaborate with channel partners, customers, and other members of our business ecosystem to share big data and applications.	
6.5. In my organization we identify internal opportunities for big data and analytics by evaluating our processes, strategies, and marketplace.	
6.6. In my organization we have explored or adopted tools to process unstructured data such as text, video, or images.	
6.7. In my organization our data scientists, quantitative analysts, and data management professionals operate effectively in teams to address big data and analytics projects.	

Use scale 1	
7. (Project management and agile expertise) How project success isdefined?	
7.1. Project success depends on traditional iron triangle criteria on time, within budget, and to specification. 7.2. Project success depends on high quality design, and effective functioning of the project team. 7.3. Project success depends on solution use, user satisfaction, and user benefits.	
8. (Project management and agile expertise) Stakeholder involvement: 8.1 Not involved, 8.2 Involved without influence, 8.3 Involved with influence.	Select one option
9. (Project management and agile expertise) Multidisciplinary project teams: 9.1 Not multi-functional, 9.2 Some key departments, 9.3 Most departments	Select one option
10. (Project management and agile expertise) Project management responsibility: 10.1 Created by a department or Project Management Office, 10.2 Created by the project manager, 10.3 Created collaboratively	Select one option
11. Which barriers are impeding your organization to adopt or develop digital technologies? 11.1. Lack of organizational strategy. 11.2. Lack of ecosystem strategy. 11.3. Lack of collaborative culture. 11.4. Lack of leadership/CEO level understanding. 11.5. CEO-level satisfaction with status quo. 11.6. Employees lack of ability to use digital technologies (cloud, social, mobile, and analytics). 11.7. Legal/regulations restrictions. 11.8. Bestselling product/service dependency on current commercial context.	Multiple selection

SECTION 2 - Part B - Transformational Leadership in Digital Transformation journeys.

(adopted from Avolio, Bass and Jung (1995)).

This questionnaire assesses leadership style using the xx descriptive statements that are listed below as adopted from Avolio, Bass and Jung (1995).
Rate how frequently each statement fits the leader you interacted with for the digital project. The word "others" may mean the HOD's followers, clients or group member.

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Question Number	Question	Response
1.	Our leader makes others feel good to be around him/her	
2.	Our leader expresses with few simple words what wat we could and should do	
3.	Our leader enables others to think about old problems in new ways	
4.	Our leader helps others develop themselves	
5.	Others have complete faith in our leader	
6.	Our leader provides appealing images about what we can do	
7.	Our leader provides others with new ways of looking at puzzling things	
8.	Our leader let others know how they are doing	
9.	Others are proud to be associated with our leader	
10.	Our leader helps others to find meaning in their work	
11.	Our leader gets other to rethink ideas that they had never questioned before	
12.	Our leader gives personal attention to other who seem rejected	

SECTION 2 - Part C - Digital Leadership in Digital Transformation journeys

Adopted from Mihardjoa, Sasmokob, Alamsjahb and Elidjenb (2019)

Below are several statements that relate to prevalence of digital leadership within the organisation.

Please indicate a number to the extent to which you agree or disagree with each statement.

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Question Number	Question	Response
	Leadership Assessment	
1.	Experimental opportunities are created for all	
2.	Employees are encouraged to think outside the box more especially those that has creativity and innovation mindset to formulate the idea into reality	
3.	Leaders used digital asserts to enhance the company's performance	
4.	Our leaders drive creativity and innovation within the organisation and provides help to the teams to move forward	
5.	We understand our digital capabilities both at an individual and organisational level	
6.	The digital transformation journey is clearly understood by all	
7.	Leaders proactively respond to volatile, uncertain, complex and ambiguous (VUCA) situation	
8.	Leaders use in-depth knowledge and comprehension to make interpretation, assumption and synthesizing of information in making decision	
9.	Our leaders define, develop and drive digital business strategy that clearly outlines the digital of the company	
10.	In our organisation senior executives provides vision and purpose for digital transformation	
11.	Leaders are aligned on the organisational vision for digital future	
12.	Our leaders promote vision of the future that involves digital technologies	
13.	An agenda across functional teamwork is encouraged both vertically and horizontally	
14.	There is a strong communication across all teams	
15.	Roles and responsibilities for digital initiatives are clearly defined	
16.	Leaders regularly review our digital transformation progress	
17.	Our leaders possess the capability to be tough in facing the market and competition change	
18.	Environmental changes and disruptions of digital technologies are regularly analysed and reviewed	
19.	Leaders rapidly react and invest resources to ensure the organisational transformation success	
20.	Leaders have embraced digital thinking by leveraging digital insight, digital decision-making, digital implementation, and digital guidance to ensure that their goals are achieved.	
21.	Our leaders have a comprehensive knowledge of own skills and capabilities in the digital area as well as those of their teams	
22.	Necessary culture changes are promoted by our leaders	
23.	Our leaders act as role models for disruptive technology adoption	
24.	Our leaders invest in professional development at all levels in the organisation	