
*Leadership competences for digital
transformation in a telecommunications
organisation*

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Abstract

The purpose of this research is to identify how leaders in telecommunications organisations define digital transformation and what competences they require to deliver it. Interviews with leaders in an African telecommunications organisation unpacked what their views are about the role of leadership and strategy in digital transformation. These leaders also provided views about how they define digital transformation and the competences they think are required to deliver it. The findings were cross referenced with some of the models in existing literature and there was very close alignment in terms of competences, definition and strategy models for digital transformation.

Keywords

Digital Transformation, Leadership Competences, Digital Leadership

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.



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Chapter 1: Introduction

1.1. Introduction and Description of Problem

Digital transformation leaders need specific competences to be able to adequately prepare the organisation for a highly customised market where quality, price and speed of delivery are fundamental (José & Rocha, 2019). Organisations need to establish what those competences are so that they can invest in them. José and Rocha (2019) showed that investing in employees is important for organisations to retain them, which can also provide a competitive advantage. Organisations need to develop new, VUCA-ready leadership competencies to successfully navigate the business into the rapidly changing digital age presented by the fourth industrial revolution, which requires more than restructuring systems, processes and operating models (Mdluli & Makhupe, 2017).

A vast range of competences are required for digital transformation which vary in importance depending on the needs of the organisation and the business context (Reis, Amorim, Melão, & Matos, 2018). A study by Zeike, Bradbury, Lindert, and Pfa (2019) identifies a digital leadership competence model which states that a successful digital leader is made of two dimensions. The first dimension is competence, attitude or behaviour for the digital age which can be quantified as the leaders' digital literacy. The second dimension are the competencies to drive digital transformation which comprise of digital leadership skills and capabilities. Their research showed that no validated scale exists in previous studies which can be used to assess digital leadership skills in managers. The field of digital leadership is still emerging and has very little if any theoretical or empirically validated concepts (Zeike, Bradbury, et al., 2019).

Before identifying the leadership competences required for successful digital transformation, there is a need to establish the definition of digital transformation. Reis et al. (2018) showed that there is no formal definition or categorisation of digital transformation in academic literature. Their study defined digital transformation as various initiatives entailing technological, organisational and social elements. There is a need for more academic writings on digital transformation as the term has been

neglected in scholarly literature (Reis et al., 2018). There is no commonly agreed meaning for the term digital, therefore organisations seeking to develop digital leaders need to define what the term means for their specific business, so that the leaders can be successful (Hearsum, 2015). This study was therefore incorporated with an investigation to try and establish what business leaders believe the definition for digital transformation should be, in order to then get to the competences required for it.

The communications sector which includes telecommunications is the only one that has faced complete and literal digital transformation (Cave, 2018). To get better insight on one of the most impacted sectors, this study was conducted with business leaders for a telecommunications service provider based in Africa with a holding company in Mauritius and headquartered in the United Kingdom. The study focused on finding out from these leaders how they defined digital transformation as a telecommunications organisation and what leadership competences they believed would be most effective in driving the change in their environment.

Businesses with low maturity in digital adoption tend to focus on technology, whereas transformation is driven by digital strategy, which signals a failure to change the culture accordingly. Digital strategy is there to transform the business strategies including IT, services, products and processes (Rao, 2018). One of the main elements that contribute to the competences required for digital transformation is the strategy. This study therefore explored how leaders in telecommunications strategized for digital transformation in comparison to some of the existing models in literature. Mdluli and Makhupe (2017) noted that digital leaders need to continuously develop themselves through learning, unlearning and relearning. They need to have organisational vision and strategy, build teams with exceptional performance, and prepare for the future (Mdluli & Makhupe, 2017).

Matt, Hess, and Benlian (2015) advised that given the rapid change and complexity of the digital economy, digital transformation strategies need to be continuously

reassessed and evaluated for progress, to take any required corrective action and realign with the overall organisation strategy. It is therefore imperative for organisations to have suitable leaders who can provide effective leadership to ensure successful implementation of digital transformation strategies, which must be evaluated and adapt where required. Hess, Benlian, Matt, and Wiesböck (2016) cautioned that digital transformation is not just about evolving products, business processes, sales and supply chain to the new digital environment. Integrating and developing digitally based business models to keep up with the digital age is critical for businesses to survive, and this has become a top priority for business leaders. Business leaders are however, unclear about what options and elements they need to think about for digital transformation which is a worrying as it could hinder the business' survival (Hess et al., 2016).

Based on these arguments, this study started by investigating what literature said was the definition of digital transformation and tested that against what the participants of this study said. Thereafter, the literature was reviewed to investigate theory that existed on how to formulate a strategy for digital transformation and this was cross referenced with the view of participants in this study. The role of leadership in digital transformation as well as the competences they require was also investigated and correlated with the views of this studies participants. This is very little literature on leadership competences for digital transformation of a telecommunications organisation thus this study was carried out with participants from a telecommunications service provider based on the argument that the communications sector is the most affected by digital transformation. The problem this research investigated was to identify what leadership competences organisations needed to develop or invest in to successfully drive digital transformation.

1.2. Background of the Problem

Kohnke (2017) notes that the volatile, uncertain, complex and ambiguous conditions of the rapidly changing digital environment are known as the VUCA world. Their study states that digital transformation leaders need to be agile, risk taking, and decisive, breaking down traditional, hierarchical, siloed thinking to cope with the pressures of the

VUCA world. Having transparent, collaborative, data driven leadership will make it easier to win employees' hearts and minds, motivate them, and gain their support in driving digital transformation (Kohnke, 2017). Kane, Phillips, Copulsky, and Andrus (2019) are of the view that digital leadership is different to traditional leadership because leaders now require skills to handle the fast pace of doing business, influencing employees with a traditional mindset to shift with the changing organisational culture, having a flexible and distributed workplace, and coping with much higher levels of productivity expected. Findings from their study showed that a transformative vision, being forward-looking, having digital literacy, and adaptability are the new skills required for the digital age. With these new skills a good leader also requires the ability to articulate a good business case, make savvy investment decisions with time and resources, retain leadership responsibility for the transformation, and empower employees to succeed, as core traditional business leadership skills (Kane et al., 2019).

Westerman and Bonnet (2015) showed that it is more difficult for leaders in traditional industries to leverage the rapid pace of digital technological evolutions to transform their business and shift their mindset. Their research stated that for leaders to shift their mindsets they can start by questioning and rethinking the four traditional assumptions that customers want the human touch, operational processes can no longer be automated, an integrated company lacks agility and innovation, and lastly the strategic assets that brought success in the traditional business will still be of value in the digital age (Westerman & Bonnet, 2015).

1.3. Problem Statement and Research Questions

The telecommunications industry is going through rapid changes because of the technological advancement of the digital age. Valdez-de-leon (2016) highlighted the lack of digital transformation frameworks and models to assist Communications Service Providers with the radical change required to compete with over the top (OTT) players like Skype and Whatsapp. The key drivers identified for digital transformation were

technological advancements, new breed of firms like OTT, customer expectations and, commoditisation of traditional communication services (Valdez-de-leon, 2016).

One of the most critical roles for digital transformation to be successful is leadership. Business leaders are however, unclear about what options and elements they need to think about for digital transformation which is a worrying as it could hinder the business' survival (Hess et al., 2016). Research showed that no validated scale exists in previous studies which can be used to assess digital leadership skills in managers. The field of digital leadership is still emerging and has very little if any theoretical or empirically validated concepts (Zeike, Bradbury, et al., 2019)

Digital transformation leaders need specific competences to be able to adequately prepare the organisation for a highly customised market where quality, price and speed of delivery are fundamental (José & Rocha, 2019). Organisations need to establish what those competences are so that they can invest in them.

To address this problem organisations need to establish innovative ways to test the relevance of certain competences for certain industries and sectors. This study established what competences digital leaders in the telecommunications sector require in order to be successful.

1.4. Purpose of the Study

The purpose of this research was to assess what key competences are required to lead digital transformation in a telecommunications organisation according the strategy options and potential definitions outlined by the respondents. This research sought to add to the body of knowledge of leadership competences for digital transformation. Tolboom (2016) acknowledges that there is not a lot of academic literature on digital transformation and the little that is there is limited to very few select industries. This contribution will provide insight into, and a benchmark for the competences that a digital transformation leader should have if they are to be successful. This then enables

organisations to identify the right people to lead digital transformation for the business, be it internally or externally, and equips those who take on the role with information about areas they need to excel in for them to be successful.

The following chapters will provide a review of the relevant research that has been done on identifying suitable competences for leading digital transformation within an organisation. Thereafter this research will outline the research methodology and research questions that will be answered by conducting this qualitative study.

Chapter 2: Literature Review

2.1. Introduction

This chapter reviewed existing academic articles and analysed them with the view of the research topic. The chapter starts with the concept of digital transformation and looks at it from the perspective of its definition, strategy and role of leadership. The next section reviews the concept of leadership competences and review articles about definition of competences, digital leadership competences and digital leadership in telecommunications.

2.2. Digital Transformation

In order to investigate leadership competencies required for digital transformation in a telecommunications business, the study reviewed existing literature to understand how digital transformation was defined. To gain a deeper understanding the study then reviewed how literature explained the strategic approaches that can be taken to embed digital transformation. Lastly, literature on the role of leadership in driving changes for the digital environment was investigated. There were some gaps and contradictions identified in unpacking how existing literature explains the definition, strategy and leadership required for digital transformation, which emboldened the researcher of the need to conduct this study.

2.2.1. Definitions

A key theme that emerged in Kohnke's (2017) work, which should form part of a definition, is that digital transformation is not just about outperforming the competition but is also vital for business survival. Leveraging developments in digital technology to derive business benefits is at the core of digital transformation and is what differentiates it from other business transformations, like turnarounds or reorganisations. The use of new technologies has been happening throughout history, but what is new with digitisation is the level of connectedness and pace of adoption in the ecosystem. Not only has digital transformation created a new world of work, it has also accelerated the

speed of change faced by employees. Kohnke (2017) defined digitalisation as increased penetration of digital technologies in society including the related changes in terms of how individuals connect and behave (Kohnke, 2017). Another element that could be incorporated into the definition of digital transformation is that it is induced by the rapid changes in IT, which impact business processes, organisational capabilities and market strategy, with emphasis on alignment between business and IT (Li, Su, Zhang, & Mao, 2018).

The terms digitalisation, digitisation and digital transformation have often been used interchangeably when referring to an organisation's evolution into the digital age. Gartner's IT glossary posits distinct differences in the definition of these terms. Digitisation, also referred to as digital enablement, is the act of changing a process from analogue to digital without changing the process itself. In comparison, digitalisation is the process of moving to a digital business by leveraging digital technologies to transform the business model and generate new revenue streams. Digital transformation refers to any change related to a transition to the digital age, and thus broadly encompasses both digitisation and digitalisation (Gartner I.T., 2019).

Digitisation – through technologies like Internet of Things, Machine Learning, Robotics, Artificial Intelligence, Cloud computing, Wearables, and Social Media – creates exponential opportunities for existing businesses to be disrupted through digitalisation, thus the need for them to continuously stay abreast of these changes through digital transformation (Gupta, 2018). This observation is emphasised by Kane, Palmer, Phillips, Kiron, & Buckley (2015), who found that the power of digital technologies lies in how companies integrate them to transform their businesses and how they work. In comparison to the other studies, they also found that a risk-taking, collaborative culture is more prevalent in organisations that are more digitally transformed. The study also concluded that organisations behave differently depending on their digital transformation maturity level as demonstrated in Table 1, below.

Essentially, digital transformation is about companies adapting from the traditional to the digital business environment upon realisation of the fundamental differences. The main cited features differentiating a digital business environment from a traditional one are the fast pace, dynamic culture and mindset shift, as well as improvement in productivity effectiveness as opposed to efficiency. For companies to be successful in digital transformation, they need to be willing to experiment and not fear failure (Kane, Palmer, Phillips, Kiron, & Buckley, 2018).

Table 1: Digital Transformation Characteristics (Kane, Palmer, Phillips, Kiron, et al., 2015)

	EARLY	DEVELOPING	MATURING
Barriers	<i>Lack of strategy</i> More than half cite "lack of strategy" as a top-three barrier	<i>Managing distractions</i> Nearly half indicate "too many competing priorities" is a top-three barrier, "lack of strategy" still a challenge for one-third	<i>Security focus</i> Nearly 30% cite security as a top-three barrier; managing too many competing priorities remains a top concern for 38%
Strategy	<i>Customer and productivity driven</i> Approximately 80% cite focus on customer experience (CX) and efficiency growth	<i>Growing vision</i> CX and efficiency growth; over 70% cite focus on transformation, innovation and decision making	<i>Transformative vision</i> Over 87% cite focus on transformation, innovation and decision making
Culture	<i>Siloed</i> 34% collaborative; 26% innovative compared to competitors	<i>Integrating</i> 57% collaborative; 54% innovative compared to competitors	<i>Integrated and innovative</i> 81% collaborative; 83% innovative compared to competitors
Talent Development	<i>Tepid interest</i> 19% say their company provides resources to obtain digital skills	<i>Investing</i> 43% say their company provides resources to obtain digital skills	<i>Committed</i> 76% say their company provides resources to obtain digital skills
Leadership	<i>Lacking skills</i> 15% say leadership has sufficient digital skills	<i>Learning</i> 39% say leadership has sufficient digital skills	<i>Sophisticated</i> 76% say leadership has sufficient digital skills

There are two schools of thought when it comes to describing the new digital environment businesses are faced with (Kane et al., 2019). Their study states that some scholars believe that the future will be a sort of repetition of what has happened in the past, while others argue that it will be completely new, unpredictable and unprecedented all the time, every time. There a degree of excitement around the concept of digital transformation and it is even being used as a draw card in job advertisements, despite the fact that there is no precise definition for it yet. The word 'transformation' insinuates that the change will be perpetual, without any point of stability, while 'digital' is seen as

the use of technology to process data in real time to generate insights and information for decision making (Gray & Rumpe, 2017). The survival of several organisations is under threat from digital disruption and these organisations are feeling the pressure to transform in response (Tolboom, 2016). Tolboom (2016) stated that very little academic research has actually provided a detailed definition for digital transformation, and that the holistic way some academics try to explain digital transformation, without breaking it down into specific technologies and actions, suggest the fundamental radical shift it requires, as opposed to incremental changes. Tolboom (2016) found that there are likely to be new waves of technology in the future, which will require a review of the digital transformation definition based on its new technological triggers.

There is no formal definition or categorisation of digital transformation in academic literature. The study thus defines digital transformation as various initiatives entailing technological, organisational and social elements. Research has highlighted the need for more academic writings on digital transformation as the term has been neglected in scholarly literature (Reis et al., 2018). There is no commonly agreed meaning for the term digital, therefore organisations seeking to develop digital leaders need to define what the term means for their specific business, so that the leaders can be successful (Hearsum, 2015).

There is a lot of excitement around the concept of digital transformation and it is even being used in job advertisements, however there is no precise definition for it yet. The word transformation insinuates that the change will be perpetual without any point of stability, while digital is seen as the use of technology to process data in real time to generate insights and information for decision making (Gray & Rumpe, 2017). For the purposes of this study digital transformation will be defined as “the reinvention of a company’s vision and strategy, organizational structure, processes, capabilities, and culture to match the evolving digital business context” (Dunkle & Gurbaxani, 2019).

2.2.2. Strategy

Considering that existing literature acknowledged the lack of a clear definition for digital transformation, a review of recent literature on digital transformation strategies highlighted the need to further explore the gaps. Research showed that businesses with low maturity in digital adoption tend to focus on technology instead of digital strategy, which is what drives transformation, signalling a failure to adopt the appropriate culture change (Rao, 2018). The research showed that digital strategy is there to transform the other business strategies – including IT, services, products and processes.

Westman (2016) observed that in order for transformation to be successful, companies need to have a vision that incorporates touching the hearts and minds of employees to help them perform optimally in the digital age, as opposed to treating employees like machines. Contrary to conventional belief, digital technology cannot eliminate all jobs; some jobs were just being transformed at a faster pace (José & Rocha, 2019). The study showed that these technological developments forced organisations to transform, as old skills became obsolete and new skills gained demand. Their research also relied on projections by the World Economic Forum, which showed that five million jobs will become obsolete by 2020 due to artificial intelligence, robots and nanotechnology, rendering reskilling imperative in order for the economy to keep up with these new technologies. José and Rocha (2019) stressed that the retention of employees gave companies a competitive advantage and it thus was important for organisations to invest in, and retain, them.

While the identified benefits of employee retention were clear, research showed that many employees were not happy with how their organisations responded to digital trends (Kane, Palmer, Phillips, & Kiron, 2015). It was found that strategy, culture and talent development were more critical in the success of digital transformation than technological advancement and that there were some common culture elements among digitally maturing organisations. Common features included a higher risk tolerance, frequent experimentation, heavy talent investment, and hiring or developing digital

leaders who's soft skills can be sharpened (Kiron, Kane, Palmer, Phillips, & Buckley, 2016).

Their earlier study found that companies that did not take risks were highly unlikely to thrive because employees of all ages want to work for digitally progressive companies, and this requires a collaborative, risk-taking culture in order to remain relevant and retain employees. A culture of transformation and innovation set by leaders, with a clear strategy on how to reimagine a digital business, will determine the success of the company's digital transformation. Furthermore, a digitally maturing business is four times more likely to provide employees with the required skills than a business that is still at the earlier stages of the digital journey (Kane, Palmer, Phillips, Kiron, et al., 2015).

Kane, Palmer, Phillips, and Kiron (2015) stated that digital strategy is more effective if it is used to transform the business over and above improving customer experience. Reis et al. (2018) discussed how businesses embarked on multiple initiatives to exploit the benefits of digital transformation. These initiatives entailed the restructuring of the overall organisation, business operations, processes and products to find ways to govern the sophisticated transformations. Over and above the nuances of customer demands in digital landscape, their research showed that organisations also need to contend with tougher competition in a more connected, globalised world. The reality exposed in their findings is that of the several examples and case studies of powerful digital organisations, most were born digital. The transformation journey of traditional organisations is proving to be longer and more difficult than expected.

Organisations wishing to prioritise digital innovation, which is now impacting every industry, introduced the c-suite role of a chief digital officer (CDO) (Tumbas, Berente, & vom Brocke, 2017). This affirms Kane, Palmer, Phillips, Kiron, et al.'s (2015) statement that digitally mature organisations are twice more likely to have one person leading the transformation than less digitally mature companies. Kane et al. (2019) recommended hiring digital leaders externally which would help the business gain momentum with

transformation by possibly refreshing the senior leadership team's digital literacy, creating an enabling environment for new digital leaders to lead networks of people in agile, collaborative work, and promoting an experimentation culture in which 'failing fast and failing forward' is encouraged.

Businesses that fail to embark on digital transformation will be much slower, less flexible and unable to compete with digital pioneers in the future. They will also fail to develop the digital capabilities needed to work differently and the leadership capabilities to set and execute a vision (Zeike, Bradbury, et al., 2019). Although analytic, mobile, cloud and social media are identified as the four technologies associated with digitalisation, a major challenge is how to scale and integrate this into the existing core business (Kohnke, 2017). Digital transformation comprises a portfolio of interrelated initiatives which together help drive the required wholesale organisational change. Kohnke's study refers to three cornerstones of digital transformation success. These entail having a new form of leadership for effective coordination of identified initiatives, acquiring or developing required skills and competences to drive organisation-wide adoption, and having leaders with an intimate understanding of the implications of digital transformation for the organisation and employees.

Another study provides empirical evidence that successful organisational digital transformation requires the four categories of customer centricity, governance, innovation, and resource attainment, according to both IT and non-IT leaders (Mhlungu, Chen, & Alkema, 2019). According to Westerman's (2016), automation, data-driven management and resource fluidity, are the three technology-driven forces transforming the nature of management. The study asserts that leaders need to strike the right balance when applying these three management transformation forces in a traditional business. When applied drastically or inappropriately, they can destroy employee loyalty and stifle innovation through unempathetic transactions.

A broader view was provided by Hess, Benlian, Matt, and Wiesböck (2016) as they made use of the Digital Transformation Framework (DTF) for formulating a digital transformation strategy. They explained that the DTF has four dimensions, which are: use of technology, value creation, structural changes, and financial aspects. Their study argued that businesses need a standalone digital transformation strategy as opposed to it being part of the IT strategy or a combination of the IT and overall business strategy. The rationale behind the argument is that a digital transformation strategy is more impactful in outlining the actual transformation steps and developing the appropriate business model, organisational structure, products and processes for technologies in the digital age. The study proposes a guideline for managers to formulate a digital transformation strategy based on eleven questions, categorised into the four dimensions of the DTF as per Figure 1, below.

Use of technologies					
1. Strategic role of IT?	Enabler			Supporter	
2. Technological ambition?	Innovator	Early adopter		Follower	
Changes in value creation					
3. Degree of digital diversification?	Electronic sales channels	Cross-media	Enriched-media	Content platforms	Extended business
4. Revenue creation?	Paid content		Freemium	Advertising	Complementary products
5. Future main business scope?	Content creation	Content aggregation	Content distribution	Management of content platforms	Other
Structural changes					
6. Responsibility for digital transformation strategy?	Group CEO	CEO of business unit	Group CDO	Group CIO	
7. Organizational positioning of new activities?	Integrated			Separated	
8. Focus of operational changes?	Products and services	Business processes		Skills	
9. Building of competencies?	Internally	Partnerships	Company takeovers	External sourcing	
Financial aspects					
10. Financial pressure on current core business?	Low	Medium		High	
11. Financing of new activities?	Internal			External	

Figure 1: Key Digital Transformation Strategy Decisions (Hess et al., 2016)

Tolboom (2016) found that digital transformation is triggered by changes in analytics, social, mobile and cloud technologies, which impact any three of the seven following dimensions: processes, new organisation creation, consumer relations, market changes, user experience changes, change in number of customers, and competitor disruption. Kane, Palmer, Phillips, Kiron, et al. (2015) also refer to technology triggers for digital transformation as mentioned by Tolboom (2016) above. Tolboom (2016), however, also presented a view that digital transformation, in its current form, is a buzzword found in several consultancy-related studies, but the little research on the topic lacks academic rigour.

The variety of strategy models and frameworks in the literature demonstrates how the lack of a clear definition translates into complexity and possible confusion when it comes to planning how to drive the change. Business leaders need to find a way to operate in these complex, uncertain situations where there sometimes is not clear strategy or definition of what needs to be achieved. This section transcends into the role of leadership in digital transformation given the described terrain, which then later leads into the competences the leaders require to navigate the environment.

2.2.3. Role of Leadership

There is also no common understanding of how best to formulate a digital transformation strategy based on the reviewed literature. To further investigate the topic, a better understanding of the role that leadership is expected to play in digital transformation is required, along with an identification of the root of the gaps. A study by Rao (2018) showed that businesses are finding it extremely difficult to exploit digital technologies in digital transformation. In order to exploit and integrate digital technologies, business models need to change, and as this is one of the biggest challenges of digital transformation, it is a top priority for business leaders. The research demonstrates that a lack of agility to adapt the business's core functions and culture can result in failure of digital transformation. However, accountability systems can help reduce the ambiguity and set the correct priorities. Businesses invest significantly in digital transformation,

which most expect IT to lead, but for this to be a success, leadership, strategy and culture must be integrated and aligned (Rao, 2018).

In contrast, Kane, Palmer, Phillips, and Kiron (2015) emphasise that it is not technical skills, but rather knowledge of the business and how digital technology can impact the processes and operating model, that are the most essential skills required for success in the digital age and in order to be, and remain, competitive. Hess et al. (2016) cautioned that digital transformation is not just about evolving products, business processes, sales and supply chain to the new digital environment, but also integrating and developing digitally-based business models to keep up with the digital age, and this has become a top priority for business leaders. Business leaders are, however, unclear about what options and elements they need to think about in digital transformation, which is worrying as it could impact the survival of the business (Hess et al., 2016).

There is great anxiety and concern that existing leaders in companies do not have the skills and abilities required to lead in a digital environment. The digital age requires a different mindset and a culture of willingness to experiment and try new things (Kane, Palmer, Phillips, & Kiron, 2015). It is more difficult for leaders in traditional industries to leverage the rapid pace of digital technological evolutions to transform their business and shift their mindset (Westerman & Bonnet, 2015). Westerman and Bonnet stated that for leaders to shift their mindsets, they can start by questioning and rethinking the following four traditional assumptions: customers want the human touch, operational processes can no longer be automated, an integrated company lacks agility and innovation, and lastly, the strategic assets that brought success in the traditional business will still be of value in the digital age.

Kohnke (2017) explains that the volatile, uncertain, complex and ambiguous conditions of the rapidly-changing digital environment are known as the VUCA world. This is elaborated upon by Mdluli and Makhube (2017), who emphasised that organisations need to develop new, VUCA-ready leadership competencies in order to successfully

navigate the business into the rapidly-changing digital age presented by the Fourth Industrial Revolution (4IR), which requires more than restructuring systems, processes and operating models (Mdluli & Makhupe, 2017). Their study stated that molecular leadership competencies are critical to the ability for rapid change and agility required in digital transformation so that leaders can grow, morph and develop. They use an army analogy in which they distinguish between competencies required by soldiers for war as opposed to those required in times of peace. The leadership dilemma is how to remain relevant. A radical shift in leadership competencies is required in response to the new mindset and leadership challenges presented by 4IR. To illustrate the point, the study explains that there was no award for an exceptional African leader in 2016 by the Mo Ibrahim foundation, which is testament to the void that currently exists in leadership of 4IR on the continent (Mdluli & Makhupe, 2017).

Research by Tumbas and Berente (2017) showed that organisations have varied opinions about what the functions and responsibilities of a CDO are supposed to be. The study found that a CDO is meant to drive business value from digital technologies. There are three digital capabilities a CDO should build, namely, digital innovation, data analytics and customer engagement. The research further showed that a certain type of CDO is associated with each of those three capabilities. The types are identified as digital accelerator – driving experimental innovation, digital marketer – focused on customer intimacy, and digital harmoniser – who integrates and aggregates all digital initiatives. The CDO is responsible for data-driven interrogation of the business model and assessing customer centricity.

A case study of LEGO by Sawy and California (2016) also provides lessons for digital leadership in terms of enterprise digitisation, platforms and the digital workforce. The workforce specifically speaks to some of the competencies required for digital leadership. Organisations are required to hire digital generalists as opposed to technical specialists. LEGO also encourages organisations to make the workplace attractive for people with characteristics and behaviours that are digitally inclined. Another pointer is to track and improve the digital maturity of the organisation. Kane, Palmer, Phillips,

Kiron, et al. (2015) are of the view that as organisations mature digitally, their social, analytical, cloud and mobile technologies also tend to develop. Senior leaders need to understand the power of digital technology so that they can gain competitive advantage by using it to transform, as opposed to just improve efficiency and customer experience like most other organisations.

Similar assertions were made by Valentine (2014), who researched how boards now need to be technologically savvy in making strategic decisions. This study found that 76 percent of respondents agreed or strongly agreed that boards now need to include directors with IT skills, knowledge, and experience in IT governance. The study also found that recruiters and online forums have started to describe and position the CIO as playing three pivotal roles – Bridge Builder, Business Partner and Vision Inspirer – in leading digital transformation. This demonstrates a convergence of leadership attributes typically expected from senior management in the past.

Businesses require strong leaders to drive digital transformation forward. Not only do senior leaders map out a vision for the organisation, they also create a conducive environment for digital maturity, attracting the best talent and bringing out the best in that talent (Kane et al., 2019). Upper managers work in this complex digital era, which puts them under pressure to keep abreast of the latest technological developments, make comprehensively difficult decisions, extensively collaborate and adapt to the changed way of working, while navigating various time constraints (Zeike, Choi, Lindert, & Pfaff, 2019). The study showed that better skills in digital leadership are strongly associated with higher psychological well-being of upper-level managers. More research is required to establish if there is a causal relationship between digital leadership skills and senior managers' psychological well-being (Zeike, Bradbury, et al., 2019).

Digital leadership is defined as the ability of the leader to have a clear and meaningful vision of how the company can digitalise, and the capability to implement that strategy (Zeike, Bradbury, et al., 2019). There are contradicting expectations on digital leaders

which need to be addressed: they need to make quick decisions, but these must be well thought through; they must increase digital interaction, yet maintain social cohesion with stakeholders; they must retain the hierarchical structure, but stay in touch with and listen to grassroots employees; they must invest time analysing data, but not lose sight of the big picture; and they must keep the business stable, yet flexible almost to the point of being liquid (Hearsum, 2015). Leaders need to be aware of the impact of digital transformation on the organisation and its employees. A shift in management mindset, organisational behaviour and operating culture are required in conjunction with the technological advancements for the transformation to be successful (Kohnke, 2017).

2.3. Leadership Competences

2. A review of the literature identified gaps in the academic understanding of digital transformation and thus also in the critical role leadership needs to play in delivering digital transformation in a VUCA world. Leaders have no generally-accepted theoretical definition of digital transformation, and no reliable structure or model to follow in terms of strategy formulation. It thus became imperative to investigate the competencies a leader would require in order to navigate this challenge. This section reviewed the existing literature to explore how competencies are defined, identify which competencies digital leaders required for success, and investigate these competencies in the context of telecommunications businesses.

2.1.1. Definition of Competences

3. The digital age has resulted in an increase in higher-skilled managerial and professional jobs. These roles require flexibility and problem-solving skills. Competencies and capabilities can be defined as a multifaceted combination of skills and amassed knowledge which are applied to business processes using the organisations assets to create value (José & Rocha, 2019). The Competence Architecture Model in Figure 2, below, as presented by Roe (2002), can be applied to any occupation and defines competences as a composition of eight ingredients. Abilities, personality traits and other more stable characteristics are the foundations

for an individual to learn through an education system. Knowledge, skills, attitude and elementary competences, referred to as sub-competences, are learnt through one's education and go on to shape an individual's unique competences.

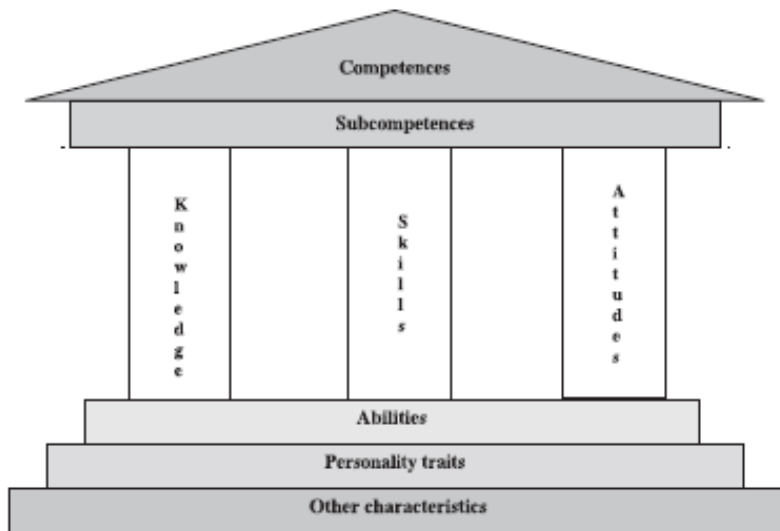


Figure 2: Competence Architecture Model (Roe, 2002)

2.1.1. Digital Leadership Competences

Digital leaders need to continuously develop themselves through learning, unlearning and relearning (Mdluli & Makhube, 2017). They need to have organisational vision and strategy, build teams which show exceptional performance, and prepare for the future. Mdluli and Makhube (2017) Molecular Leadership Competency Model identifies Intelligence Quotient (IQ), Emotional Quotient (EQ), Digital Quotient (DQ), Agility and Adaptability Quotient (AAQ), Socio-cultural Quotient (SCQ) and Creativity and Innovative Quotient (CIQ) as the six key competencies required for leadership in the digital age of 4IR.

Mdluli and Makhube (2017) explain that IQ relates to traditional leadership competences such as to think, reason, analyse, be innovative, learn unlearn and relearn new concepts, which remains at the core of leadership. EQ is about self-awareness, self-

regulation, motivation, empathy, and social skills. DQ is seen to be crucial for future leaders and is about the ability to drive a mindset of fast paced transformation and adoption ultimately becoming the digital disruptor instead of a follower or being disrupted. This requires significant culture change for everyone in the organisation to become a digital native and be comfortable with coding, social media and mobile apps for example. AAQ talks to the ability of leaders to be nimble and adapt quickly to the fast changes in the digital world. Innovating, performing, reflecting, risking, and defending are the key skills required. SCQ pertains to cultural awareness when leading an organisation and requires cultural knowledge, cross-cultural skills, mindfulness and social skills in promoting collaboration, cocreation and cooptation in the digital age. CIQ is all about design thinking, innovation and creativity in implementing new business models in the face of a multitude of obstacles.

Kane, Palmer, Phillips, and Kiron (2015) state that companies in the digital age need to be able to identify which data, from the digital technology available, will be useful and how to use that information in an agile way for maximum benefit, in alignment with their digital strategy. Digital transformation leaders need the competencies that will enable them to adequately prepare the organisation for a highly customised market where quality, price and speed of delivery are fundamental (José & Rocha, 2019). A vast range of competencies are required for digital transformation, and these vary in importance depending on the needs of the organisation and the business context (Reis et al., 2018). The core requirements for this transformation are for digital technology to become central to the operation of the business, and an innovative business model to remain competitive.

The CDO will require strong competence in experimenting with a variety of digital technologies (Tumbas et al., 2017). The study showed that the CDO must be extremely involved with, and lead, any strategic changes to organisational processes, products, services and the business model. El Sawy et al. (2016) defined digital leadership as the ensuring of successful execution of digitalisation for the enterprise and the business ecosystem. Their LEGO Group case study identified six foundational building blocks for

enterprise digital leadership, as displayed in the figure below. Two of the six identified building blocks speak to the competencies required for digital leadership. The first one is the need for a different kind of people mindset and skillset, which alludes to how everyone in the organisation – from top management downwards – needs to be more flexible and willing to innovate, experiment, occasionally fail and upskill themselves with the relevant digital knowledge. The second building block is about providing a workplace environment that caters for the younger digital generation who expect flexible work hours, sophisticated mobile online access and empathetic, authentic, humanised engagement (El Sawy et al., 2016).

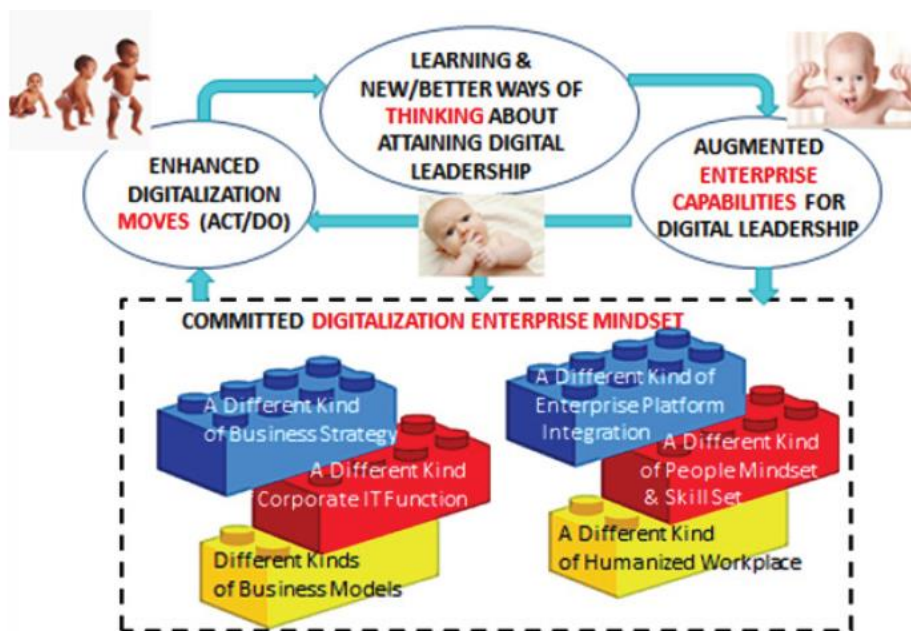


Figure 3: LEGO Six foundational building blocks (El Sawy et al., 2016)

In Kiron et al.'s (2016) study, when respondents were asked what the most important skill for successful digital leadership was, 22% responded 'having a transformative vision', 20% 'responded 'forward thinker', 18% said 'having a change-oriented mindset', 18% said 'technological skills', and 20% said 'other leadership or collaborative skills'. Their study found that technology skills were not a requirement for leading a digital company. In comparison, the study by Zeike, Bradbury, et al. (2019) identified a digital leadership competence model which states that a successful digital leader is made of two dimensions. The first dimension is competence and attitude, or behaviour, for the digital age – quantified as the leader's digital literacy. The second dimension consists of

the competencies required to drive digital transformation, which are digital leadership skills and capabilities. The research showed that in previous studies, no validated scale existed to assess digital leadership skills in managers. Since the field of digital leadership is an emerging one, there are few, if any, theoretical or empirically validated concepts.

The skills required in digital leadership differ from those of traditional leadership in that leaders now need to do business at an accelerated pace, influence employees with a traditional mindset to shift with the changing organisational culture, provide a flexible and distributed workplace, and cope with expectations of higher levels of productivity (Kane et al., 2019). Findings from the study showed that a transformative vision, being forward-looking, having digital literacy, and adaptability are the new skills required for the digital age. In addition, a good leader also requires the ability to articulate a good business case, make savvy investment decisions with time and resources, retain leadership responsibility for the transformation, and empower employees to succeed, as well as core traditional business leadership skills (Kane et al., 2019). Digital leaders need the competencies of skilled organisational change leaders to lead or facilitate business, people and cultural transformation (Hearsum, 2015). The study by Hearsum (2015) finds that the following capabilities are key for digital leaders:

1. Adaptability to change to new conditions appropriately, often and several times.
2. Collaboration to work with and challenge colleagues at all levels.
3. Innovation by willing to take risks, fail and learn.
4. User-centricity by put customers and clients first as potential users
5. Self and general awareness
6. Systemic intelligence and understanding of the organisation human systems
7. A listening leader where everybody at all levels has a platform to voice their opinion
8. Distinguish between digital technology and digital culture
9. Understand the impact of technology on the business environment
10. Understand the need to have an appropriate pace which is not always fast
11. Other capabilities are humility, compassion and humour

Digital transformation leaders need to be agile, risk-taking and decisive, breaking down traditional, hierarchical, ‘silo’ thinking in order to cope with the pressures of the VUCA world (Kohnke, 2017). The study finds that transparent, collaborative, data-driven leadership will find it easier to win employees’ hearts and minds, motivate them and gain their support in driving digital transformation. Figure 4, below, breaks down the organisational change management approach for digitisation into four major areas.

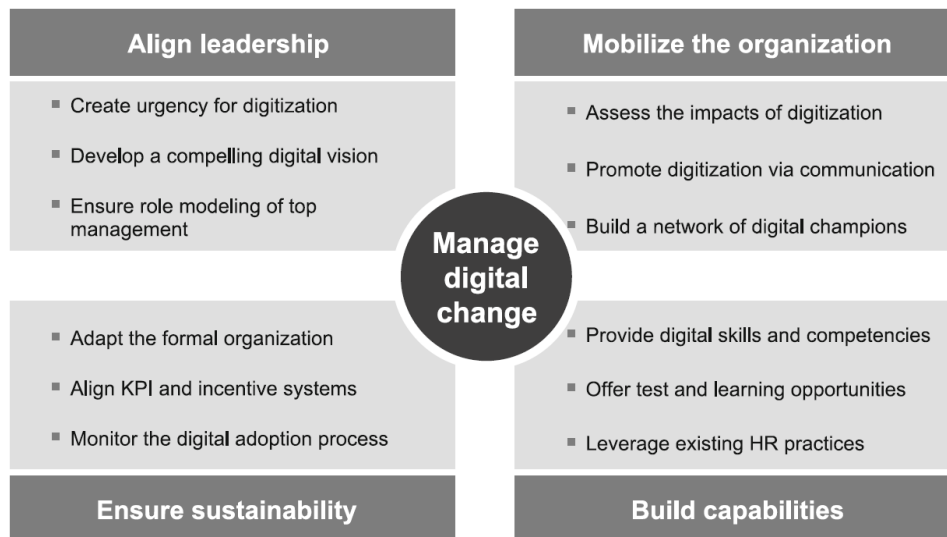


Figure 4: Change management approach for digitisation (Kohnke, 2017)

Li et al. (2018) used the Dynamic Managerial Capabilities (DMC) model to look at a Small Medium Enterprise (SME) entrepreneur’s digital transformation management capabilities by focusing on cognition, social capital and human capital. Their study defined managerial cognition as the manager’s personal decision-making framework. This comprises their knowledge, understanding and sensing of market trends, geopolitics and future development predictions, in order to steer and transform their organisation accordingly. Managerial social capital is the manager’s formal and informal network that provides diverse information to help sense market opportunities and threats, which generate meaningful insights for digital transformation. Human capital refers to the manager’s individual and combined team composition of knowledge, experience, skills and education to help structure the business for digital transformation. Research showed that managers with superior DMC were successful in strategic changes like digital transformation, and improved business performance.

Promoting strong DMC in top management is key for successful digital transformation (Li et al., 2018). Digital fluency is not about technology mastery, but about the ability to explain the value of digitalisation for the future (Kane, Palmer, Phillips, Kiron, et al., 2015). The study found that employees in digitally-maturing companies had confidence in the digital fluency of their leaders. It is in the integration of digital technology to change how a company does business, and not in standalone technologies, that the strength of the transformation lies. Their study concludes that the key to digital leadership is a clear strategy that has been communicated to employees, driven by competent leadership and complemented by an appropriate culture.

2.1.2. Digital Leadership in Telecommunications

Mobile network operators are disrupting traditional African banks through the introduction of mobile money (Mdluli & Makhupe, 2017). A small telecommunications company increased its brand awareness by training employees to be brand ambassadors on social media, which in turn strengthened the connection of those employees to the brand (Kane, Palmer, Phillips, & Kiron, 2015). It is argued that the telecommunications sector – which includes telecommunications – is the only one that has faced complete and literal digital transformation. This transformation started with digital core networks in the 1970's, and progressed to IP networks, radio access networks and backhaul, followed by the displacement of analogue broadcasting, and then the emergence of 5G and software-defined networks in today's world (Cave, 2018). The telecommunications industry is going through rapid changes because of the technological advancement of the digital age (Valdez-de-leon, 2016). The study highlighted the lack of digital transformation frameworks and models to assist communications service providers with the radical change required to compete with over-the-top (OTT) players like Skype and WhatsApp. The key drivers were technological advancements, new breed of firms like OTT, customer expectations and lastly, commoditisation of traditional communication services. The research sought to develop a digital maturity model specifically for organisations in the telecommunications industry. The model below assesses the digital maturity level of communications service

providers based on seven dimensions: strategy, organisation, customer, ecosystem, operations, technology, and innovation. This assessment is done on a scale ranging as follows: not started, initiating, enabling, integrating, optimising, and pioneering. Tolboom (2016) recommended that future research should be performed on the impact of digital transformation in specific industries which can offer unique insights. Therefore, this study embarked on investigating leadership competencies required for digital transformation in a telecommunications organisation.

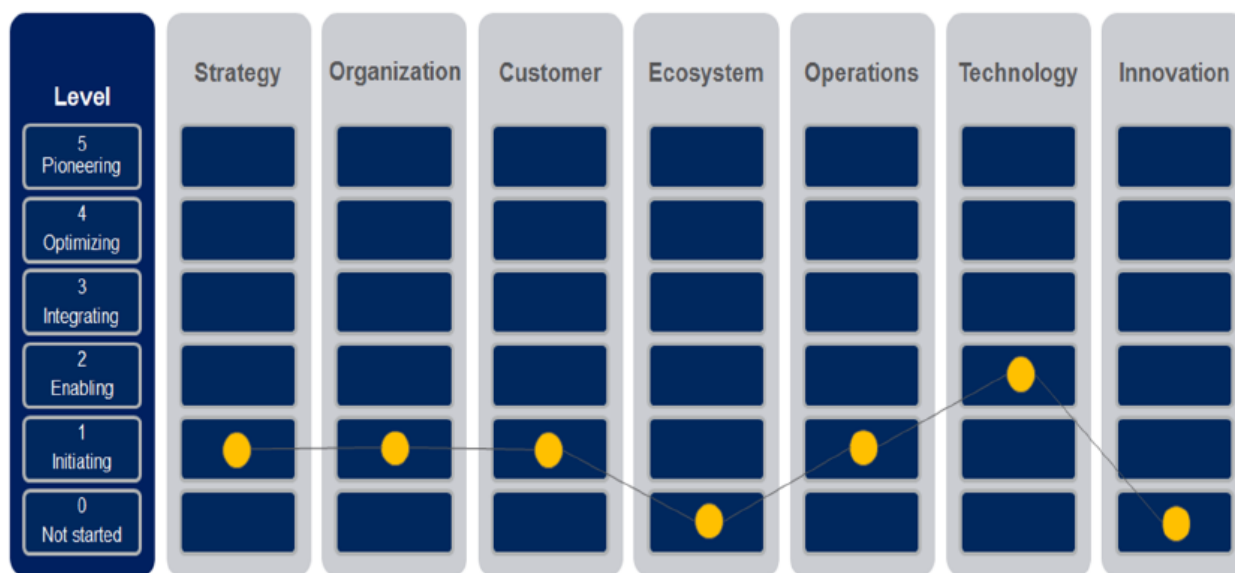


Figure 5: Telecommunications digital maturity model (Valdez-de-leon, 2016)

2.2. Conclusion

Research has highlighted the need for more academic literature on digital transformation, which has been somewhat neglected to date (Reis et al., 2018). There is no commonly agreed meaning for the term ‘digital’, and organisations seeking to develop digital leaders therefore need to define what the term means for their specific business, in order that leaders can be positioned for success (Kane et al., 2019). The Digital Transformation Framework, which has four dimensions – use of technology, value creation, structural changes, and financial aspects – may be used to formulate a digital transformation strategy. (Kane et al., 2019) argued that businesses need a standalone digital transformation strategy which is not part of the IT strategy or the combined IT-overall business strategy (Hess et al., 2016). It is argued that the

communications sector, which includes telecommunications, is the only one that has faced complete and literal digital transformation (Cave, 2018). The study seeks to add to the body of literature on leadership competencies for the digital transformation of telecommunications service providers. Research shows that there is a lack of digital transformation frameworks and models to assist communications service providers with the radical change required to compete with OTT players (Valdez-de-leon, 2016). The next chapter will unpack the research questions that need to be answered through this qualitative study.

Chapter 3: Research Questions

The main goal of this study was to investigate the leadership competences required for digital transformation of telecommunications service providers. The following research questions were thus formulated in based on the literature review:

Research Question 1:

How do telecommunications service providers define digital transformation?

Research Question 2:

What competences do leaders in telecommunications service provider businesses need for digital transformation?

To answer these questions a qualitative study was conducted and the methodology that was used is outlined in the next chapter.

Chapter 4: Research Methodology

4.1. Introduction

This chapter outlines the research methodology and design used to carry out this research study. The purpose of this study was to evaluate the digital transformation leadership competencies in the African telecommunications industry. The research methodology, design and interview questions were derived from the literature review conducted in Chapter 2. This was a qualitative, exploratory study where data was collected through in-depth, semi structured, face-to-face, telephonic and videoconferencing interviews. To prevent bias when addressing the research problem, data was collected and analysed based on the research methodology (Saunders & Lewis, 2018).

This chapter will firstly describe the research methodology and design, as well as explain why it was appropriate for this study. Thereafter, details of the population, unit of analysis, sample selected, and the measurement instrument utilised in the study, will be provided. An outline of the data gathering and analysis processes will follow. An overview of the limitations of the study and an explanation of how reliability and validity were achieved, will conclude the chapter.

4.2. Research Methodology and Design

Data from the natural environment in which the industry operates needed to be interpreted to gain a deeper understanding of the various social elements, making this study more suited to interpretivism (Saunders & Lewis, 2018). Based on the research questions, which were formulated around the problem definition in Chapter 1, the most appropriate design for this research was a qualitative, grounded theory approach. Qualitative research is most effective when little information exists on a topic and when trying to understand and explain complex social phenomena like leadership competencies. Semi-structured interviews, participant observation and literature review were employed to investigate the competencies of a successful digital transformation leader. The multi-method approach was chosen to ensure deeper and richer data than

what could be attained from a single method, as well as to corroborate the research with multiple data collection methods for triangulation (Palakshappa & Ellen Gordon, 2006). Qualitative methodology best suited this research as it sought to build theory by investigating the topic from the interviewees' perspectives. There was also no indication as to what information would be gathered from the investigation. A grounded theory strategy was best for this research as it allowed for process questions about experiences of leadership competencies required when embarking on digital transformation. This helped build theory based on data generated from interviews using the inductive research approach (Creswell et al., 2007).

A cross-sectional study was selected as most appropriate for this study given the time constraints for completion of the research. This study was based on data collected at a particular point in time for investigation on the topic of digital transformation leadership. This is referred to as a snapshot, and comprised data collected once-off from a variety of interviewees in this inductive, exploratory, qualitative study. In order to build on the existing theory of digital transformation and provide a deeper understanding of the leadership competencies required in the telecommunications industry, it was best to make use of an inductive approach. By researching from an inductive perspective, this study sought to get a detailed understanding of the critical competencies required for leadership of digital transformation in the telecommunications industry in order to build on existing theory. Exploratory studies aim to seek new insights, ask new questions and assess topics in a new light. This was precisely the aim of this study in terms of investigating leadership competencies for digital transformation which are not understood well (Saunders & Lewis, 2018).

Interviews, as well as the literature review, were employed to qualitatively investigate this topic. One of the most common and effective ways of collecting data for a qualitative, exploratory, multi-method research is semi-structured interviews. This study made use of this technique to collect data from senior leaders responsible for digital transformation in the telecommunications industry. Semi-structured interviews were selected based on the fact that there is flexibility to change and rearrange questions based on

circumstances which enables better exploration, unpacking and understanding of the data collected (Saunders & Lewis, 2018).

4.3. Population

The target population is a complete set of group members with experience in leading digital transformation (Saunders & Lewis, 2018). This research focused on a sample of that population: senior leaders responsible for digital transformation in the telecommunications industry in Africa. This population was the most likely to have relevant information which could assist in answering this study's research questions. Africa has the highest growth in mobile subscriptions and leads the world in the use of mobile phones for money transfer. To reap the full benefits of the digital economy, Africa needs to digitally transform from basic connectivity to interconnectivity allowing for development of applications and services (Nyirenda-jere & Biru, 2015). This population of digital transformation leaders in the telecommunications industry in Africa would have rich insights into the competencies required, and the obstacles that needed to be overcome, in digital transformation. The sample consisted of operating company chief executives, directors, heads of department and senior managers in African countries, responsible for the digital transformation in their telecommunications organisations.

4.4. Unit of Analysis

The unit of analysis for qualitative research is about who or what is providing the data for analysis and aggregation (Mayer, 2015). The unit of analysis for this study was business leaders who had knowledge or experience of conducting digital transformation in telecommunications organisations. More specifically, the analysis was about getting insight into the competences the leaders believed were most effective for them in driving digital transformation.

4.5. Sampling method and size

Given that the digital transformation leadership population that this study targeted could not be quantified or predicted, the non-probability sampling technique appeared to be

the most appropriate. Considering the time constraints on data collection from a small sample size, as well as the need to triangulate data for corroboration, a mixed purposive sampling technique appeared to be the most effective and practical option (Saunders & Lewis, 2018). Selection of participants was based on the researcher's expert judgement to identify people in leadership with knowledge about digital transformation in telecommunications service provider organisations. The mix of participants was selected from South Africa, Zimbabwe, Zambia, Kenya, Rwanda, Zanzibar and the United Kingdom, which made it easier for triangulation of the findings to test validity. Given this qualitative, mixed, purposive sampling approach for research that was grounded in theory a sample of 12 interviews was conducted and deemed to be representative (Guest, Bunce, & Johnson, 2006).

4.6. Research Instrument

Since the main data collection method was to be semi-structured interviews, a shortlist of questions was prepared. These would serve to guide the interviews, but also allow for adjustment as the as the interviews unfolded. The research questions were based on the research objectives in Chapter 1, literature review in Chapter 2 and the research proposition in Chapter 3 of this study. Audio conferencing and face-to-face interviews were conducted as these were identified as predominant techniques (Creswell, Hanson, Plano, Hanson, Clark, & Morales, 2007). Interviews were all recorded on the audioconferencing system for both techniques, with permission of the interviewee and transcribed to ensure that there was an accurate record of what was said. All the participants were given an agenda for the interview in advance to provide enough time to prepare and clarify any issues or concerns. The technology used to conduct and record the interviews was tested beforehand to ensure that everything was in good working order. In order to further ensure accuracy, data from the recording was also triangulated by comparing it to the notes of the unstructured observation from the interview as well as verifying any unclear audio from the recording with the participant, or if appropriate, a third party, or relying on the interpretation of the researcher who was also a digital transformation practitioner. To ensure reliability of the questions, the researcher made sure that question content tied in with the research questions. The

researcher also ensured there were no leading or closed questions, and that there was not too much detail or jargon that the participants would struggle to understand. The sequence of questions was also a major consideration, though there was some flexibility in this regard due to the semi-structured format selected. To ensure reliability of the instruments, a pilot interview was conducted to check the flow of the questions, viability of the format in terms of face-to-face and technology, as well as to ensure acceptable recording quality (Creswell, Hanson, Plano, Hanson, Clark, & Morales, 2007). The interview schedule is attached in Appendix 2.

4.7. Data gathering process

Interviews are the most popular way of collecting data in qualitative research because they offer an opportunity to get a full and detailed account of the participant's experience on a subject (Polkinghorne, 2005). Thus, the process of data collection was achieved through semi-structured interviews with individual digital transformation leaders. In order to access this population, face-to-face, telephonic and videoconference interviews were conducted with identified individuals through snowball and criterion purposive sampling (Guest, Bunce, & Johnson, 2006). The researcher is a Group Head of Internal Digital Transformation for a Pan African organisation and was thus able to identify the best suited participants, not only for the interviews, but who could also recommend other participants of similar calibre. Upon identifying a participant, as much background detail as possible about the individual was gathered. Thereafter, contact was made to attain permission for the interview, location/ media for the interview was agreed upon, a predesigned interview guide was shared with the participant as preparation for the interview, and a suitable date and time were confirmed. Every participant was provided with a consent form in advance, which included information that addressed possible uncertainties the respondents may have had, in terms of confidentiality or anonymity, as well as stating the intention and outlining details of the interview. The interviews were voluntary and, after gaining consent, were scheduled for times suitable to the participants. The confidentiality of every participant was protected, and no names or identifiable particulars of interviewees were stored or reported in the study. Furthermore, to ensure confidentiality, pseudonyms were used to refer to participants and their respective organisations, competitors and system names.

Various question-asking techniques were employed the interviews, as illustrated in Table 2, below. All the questions were prepared in advance and a pilot interview was conducted, as described in Section 5.4 above. All interviews were recorded, transcribed as soon as possible after the interview, and archived for analysis and referencing.

4.8. Analysis approach

Since qualitative research is centred around understanding complex phenomena, it is critical to ensure that data is interpreted and analysed correctly (Palakshappa & Ellen Gordon, 2006). ATLAS.ti was used for data analysis of all the interviews to categorise the data from the responses and establish possible patterns in the responses, which would help to build or enhance theory on digital transformation by defining potential standard key leadership competencies that should be in place. As this study looked to build theory on potentially universally-acceptable key leadership competencies for digital transformation, inductive analysis was selected as being most suitable to identify possible theories from the data and develop questions to test them (Saunders & Lewis, 2018). The essential aim in analysing this data with ATLAS.ti was to ensure that the interviews and all other collected data were transcribed, documented and coded correctly for the tool to be effective.

4.9. Limitations

One of the limitations of the sample used for this research was that all the participants were from the same holding company. The company has thirteen operating companies (OPCO) within four regions on the African continent and a group office based in the United Kingdom, in London. This sample cannot be representative of the telecommunications sector, or telecommunications service providers in Africa. The researcher opted to remain with that sample despite the limitation as the data does provide some insight on African telecommunications service providers. As the researcher is a digital transformation leader, – which is the very focus of this research topic – there was likely to be a natural bias in how the study was conducted. There was

some degree of difficulty in maintaining the requisite level of objectivity in the process. The findings of qualitative research are not quantifiable or verifiable. However, that is the nature of interpretivism. The study will be very difficult to replicate given the nuanced and unique nature of the investigation process. Replication might only be possible if the finer details of how the study was conducted are meticulously documented. The nature of qualitative research also means that it is not generalisable from the sample of digital transformation practitioners interviewed to the entire population

4.10. Reliability and Validity

The trustworthiness and rigour of this paper hinge on passing the reliability and validity test, which is essential for credibility. Reliability talks to how consistent the research findings are with the selected research design and analysis. Validity, on the other hand, refers to the correctness of the research methods in measuring the anticipated phenomena. The establishment of these elements at the onset of the study, is vital, so that the process leading to the findings is dependable, confirmable and transferable (Morse, Barrett, Mayan, Olson, & Spiers, 2002).

The data for this study was gathered using semi-structured interviews. An interview guide with standardised questions was also developed to ensure reliability and validity of the data collected. To reduce bias, no leading questions were crafted. Interviewees were also assured of anonymity in the introductory stage of the interviews and through completion of the Consent Forms in Appendix 3.

Chapter 5: Results

5.1. Introduction

2. This chapter presents the findings of the research questions outlined in Chapter 3. The literature review and the research questions were used to formulate interview questions for the interview guide. The consistency matrix in Table 1 ensured alignment between the literature review and the research questions. The findings of the semi-structured interviews, which were conducted by audio conference, using Microsoft Teams, as well as face-to-face, will be presented in this chapter.

Table 2: Consistency Matrix

QUESTIONS	LITERATURE REVIEW	DATA COLLECTION TOOL	ANALYSIS
1. How do telecommunications service providers define digital transformation?	(Cave, 2018) (Valdez-de-leon, 2016)	Interview Guide	ATLAS.ti
2. What competences do leaders in telecommunications service provider businesses need for digital transformation?	(Kane et al., 2019) (Hearsum, 2015) (Zeike, Bradbury, et al., 2019) (Rao, 2018)	Interview Guide	ATLAS.ti

5.1. Sample Description

Table 2 below shows all the twelve participants of the interview who were business leaders at Group, Region and OPCO level for an African based telecommunications service provider organisation which was undergoing digital transformation. Two of the participants were based in South Africa at Group level, two in the Zimbabwe OPCO, two in the Zambia OPCO, two Kenya for the East Africa Region, one in the Rwanda OPCO, one in the Zanzibar OPCO and the last two in the United Kingdom at Group level. They all have on average three years' experience in the telecommunications industry

Table 3: Interview Participants

Participant	Position	Method	Interview Length (Mins)
1	Group COO	Audio Conference	29:21
2	Group Director	Face to face	51:58
3	Group Head	Audio Conference	50:38
4	Group Manager	Face to face	51:21
5	East Africa Region CEO	Audio Conference	34:49
6	East Africa Region Head	Audio Conference	28:11
7	Rwanda CTO	Audio Conference	24:20
8	Zanzibar Director	Audio Conference	30:37
9	Zambia CEO	Audio Conference	43:33
10	Zambia CTO	Audio Conference	45:41
11	Zimbabwe Head	Audio Conference	23:56
12	Zimbabwe Manager	Audio Conference	34:03

5.2. Presentation of results

An inductive analysis process was used to investigate the academic concept of leadership competencies for digital transformation. This process is most effective when

trying to establish themes from the data and analysing concepts that have limited theory. The findings are presented in alignment with the research questions outlined in Chapter 3.

5.3. Research Question 1:

How do telecommunications service providers define digital transformation?

The list of themes that emerged from the research regarding defining digital transformation showed that taking people with you was the most frequently mention theme. The list of top 10 themes on definitions for digital transformation is below:

Code	Grounded	Density
take the people with you	23	6
customer experience	23	6
basic hands-on digital skills	18	2
ability to strategize	16	9
cultural and business change	15	2
align people, processes and systems	15	6
clear vision	14	6
different operating model	11	0
system automations	11	7

The literature review revealed that there is no formal or agreed definition of what digital transformation is. The first research question of this study set out to investigate what definition would emerge from business leaders of telecommunications service providers, which form part of the communications sector, that the literature review positions as the industry most disrupted by digitalisation. Thus, the research question informed the semi-structured interview questions that were posed to the 12 participants of this study. To get a consolidated view of what digital transformation is, the study looked at how it is defined, what strategy concepts have been pursued, and how leadership plays a role in driving it.

5.3.1. Digital Transformation Definition

In Chapter 2, the literature revealed several varying understandings of the definition of digital transformation. This research question focused on the aspect of these varying definitions. The results showed that the respondents, who were all business leaders within a telecommunications organisation, also gave various versions of a definition. The most frequently discussed perspective by the participants in response to how they define digital transformation was technology automation, followed by customer interactions, People-Process-Technology, and culture. The most interlinked definition came from Participant 7, who stated:

“Basically, my understanding is that it’s a change in the way we do things, where we use digital technologies to transform the way we do business, the way we interact with our customers, the way we interact with each other, internally. And the way we interact with our competitors and stakeholders”

Technology Automation

Two participants viewed digital transformation as just another complicated way of positioning system automation. Eight of the participants put technology at the centre of digital transformation with the understanding that it is the implementation of well-integrated, very agile and robust IT systems aligned to business processes. These support systems are meant to improve the performance of business operations. As automation is enhanced, business processes become more seamless and transparent within any eco-system. Participant 6 stated:

“So by virtue or by design, telecoms industry is one industry that has been almost at the forefront of technology, and the fact that as a company you’re servicing huge numbers of people, it reduces the potential to engage people one on one on a physical level. So, businesses have to – telecoms industry have merely designed its marketing and its existence around using technology to understand end users, using technology to deliver services to end users, and using technology to regain or to own a market share, or to own a position within the mind of consumers.”

Another concept that emerged was that the use of technology speeds up service delivery. The adoption of technologies was also highlighted as a key element for digital transformation. In fact, it was the role of technology that emerged as the main aspect in all responses, as pointed out by Participant 8, who said:

“Digital transformation has – with my understanding would be, as it is we are all going paperless and everything must be automated, starting from connection point of view until termination, it should all be automatic.”

Customer Interactions

Four participants in this study put the customer at the centre of their definition of digital transformation. The general sentiment from participants was that the main reason telecommunications companies embarked on digital transformation was to provide a better customer experience in accordance with how the customer wants to be served. This also included customer education, with specific mention of getting customers future-ready by enlightening them about what they are going to have in place for their needs to be met in the future. The key element these participants put forward in their responses was that businesses needed to offer end-to-end solutions to ensure customer excellence and address customer needs with flexibility. Participant 11 explained their definition as follows:

“it’s just transforming the way that we talk to our customers, the way we educate our customers, across the spectrum from retail to small, medium enterprises, to the larger corporates. And to just really get everyone future ready to say, this is today but are we ready for tomorrow, and are you ready for the changes that tomorrow brings in terms of the way that you do business?”

The responses in demonstrate how traditional and fixed the mindsets are in the telecommunications sector. This makes change more difficult when trying to refocus and

prioritise customer needs as opposed to network and technology improvements. There was also a strong case made for more focus to be put on data driven decisions to proactively improve internal processes and provide a better customer experience. Participant 5 had the following to say:

“So if you look at the mobile Telco’s and how they are using digital transformation it’s more around customer experience, whether trying to digitise as much as possible the touch point with customers, because customers are demanding it.....Then the mobile Telco’s are also looking at digital transformation a lot in their internal processes, so most of the mobile Telco’s are trying to digitise their data. So basically, trying to see what their data usage, customer’s usage data is telling them, and how they can use that to up sell, cross sell, services smartly to certain customers.”

People-Process-Technology

Three participants focused their definition of digital transformation on the concerted effort to ensure close alignment and integration between the people, processes and technology within a telecommunications organisation. Participant 6 offered the following insightful definition:

“So digital transformation, why it’s something that usually starts with technology in most cases, the success of digital transformation is largely dependent on people and processes, because the mind-set of people and processes need to be in tune with the technology to bring the best out of that technology.”

Other elements raised were around having a good understanding of customers’ needs when drawing up the sales strategy and having the future in mind while embarking on the digital transformation journey, something that is primarily dependant on integration between people, process and technology.

Culture

Two participants pinpointed culture as a pivotal aspect in digital transformation, making three mentions of it in their responses. The main cultural elements that came out of the research centred on the need for a change in mindset to embrace the digital world, as well as a complete transformation in how things are done in people's lives. Speaking specifically about the telecommunications space, Participant 2 said:

“as far as the culture in a business like that is concerned, I think that is probably the biggest challenge for telco's, is that mind set change of really becoming a digital player in the world today, where telco's initially have not really been focused on digital services. And the competition is actually eating our lunch because we are unable to change quick enough.”

5.3.2. Digital Transformation Strategy

The literature review in Chapter 2 showed that there are several propositions for effective strategies that can be applied in digital transformation. This could be a reflection of the lack of a proper, accepted definition of digital transformation. The multitude of strategy models also present a challenge for organisations because they need to select one before they can decide how to structure the role of leadership in driving digital transformation. For the purposes of this study, the Key Digital Transformation Strategy Decisions model in Figure 1 (Hess et al., 2016) was used to explore commonalities and disparities in the responses from the participants. Participant 4 had the following to say regarding the importance of setting a strategy:

“If we haven't set that business strategy, which should come from the very top level of – and it doesn't have to be granular, it can be more high level, but they need that end state or that goal that everyone else in the business can work towards. If you don't have that beacon that everyone's aiming for, people get very distracted and all over the show, and we adopt technologies that may suit one department, and we can put something in

marketing or sales that makes so much sense for them, but it's moving away from what the overall company goal is."

Use of Technologies

Research showed that there was a perception that people see technology as a replacement for humans, rather than as an enabler. The contention from most of the participants in this study was that technology should only be a business enabler for what the business needs to do. The telecommunications industry is best suited to be the enabler of such solutions, be it for the business or for the consumer. Participant 3 asserted that:

"there is a dire need to reduce the technical debt, in other words simplify the number of systems that we have, and focus on new technologies at the same time, you know evolve into cloud, make things self-service."

The participants were also of that view that IT needs to have agile methods and an agile workforce in place. By so doing, the need for documented business requirements can also be done in an agile format which is very quick and not too exhaustive. The owner of the requirements becomes more involved in the iterative technical development process to provide input and confirmation instantly so that development is done quicker. With ubiquity of technology the business user could also chose to create a shadow IT application themselves to do the required development.

There is a definite sentiment that the telecommunications industry should be the first adopter of digital transformation, because the business can only survive if it uses and offers cutting-edge digital services, with digital tools and cloud tools becoming enablers to achieve that strategy. The general problem seen in telecommunications is the dependence on investing in specific vendor innovation over which companies have little control. The 5G protocol is a typical example. The only options within 5G are either

Huawei or Ericsson. The challenge in telecommunications is that the eco-system is vendor-driven rather than own-innovation driven.

Another view from Participant 2 in terms of how strategically well-positioned telecommunications businesses are to be innovators can be seen in the following statement:

“the amount of data and information that telco’s have could and should be a massive source of value to telco’s, yet they don’t see it that way – they just use it for internal business decision making and so forth. But there is a lot of value in terms of customer information, customer predictable – what customers do on their network that could inform other business insights and new innovative solutions that they could offer customers. We are nowhere near as a telco really making use of that insight to develop new innovative solutions for customers. And I am not just talking current customer base, even businesses that make use of our network, we could learn something of their way of work and what they do with information that we have in order to inform ‘ah there is an opportunity’ and then build solutions around that. So that kind of creative and innovative design and development is going to be based on a lot of data insight, which we don’t have yet”

Responses uncovered that there is no clear understanding of what innovation is in the telecommunications space. There is a need to identify the kind of innovation needed to remain relevant, and that does not involve simply adding additional value-added offerings on top of current connectivity, as that is not innovation. The participants argued there is a desperate need for telecommunication companies to think innovatively, in a different way, in this new, competitive landscape. Business needs to redefine itself or be innovative by looking within and/or looking at what exactly drives growth in this industry.

Changes in Value Creation

The participants highlighted that in terms value creation, the telecommunications world has self-service channels, like the portals or apps which customers can interact and do business with. The portal is programmatic and software-driven on the network to make support systems more user-friendly. The results showed that value creation had several factors that needed to be considered in identifying the correct channel(s), revenue creation model and future business scope. Service delivery is another consideration because its mandate is to deliver more services from the order book to attain higher revenue. The main outcome of digitising is a process to make visibility of the incremental revenue attained seamless and easy to communicate on a monthly basis to increase dividends to shareholders. Participant 2 stated:

“competition landscape has also changed. It is no longer telco against telco, it is a competitive landscape that is filled with operators that are non-traditional telco operators, and if you don’t understand that competition that is eroding your value, you cannot compete effectively. So you need to have a vision and a strategy around how you address your competition.”

The results showed that a deep understanding of the data in the possession of telecommunications providers, offers enormous value as it can be used to create new, innovative solutions. A business should therefore put proper thought into the outcomes it requires from its cloud or digital transformation strategy – and not just draft one for show – because there is real value to be gained from this.

Another observation from the findings was the assertion that when creating applications or processes, it is best to use a personal approach with the aim of delivering value to a senior business stakeholder, and ultimately, the end user. The research found that the entire value chain is digital when it comes to managing customers. However, the telecommunications market is accustomed to over-the-counter transactions. As a result, network operators have perfected how they reach out to the customers, including front

door visits using mobile booths, and through using digital platforms to pay for services, like the mobile money platforms, and also bank integration. Telecommunications providers need to understand that if transforming to an enterprise business there is a significant level of integration, platform capability and data capability required and there would be a gap in the existing digital platform's understanding of how services will be rendered as an IT service provider going forward. Participant 4 highlights how important it is to have these digital platforms and channels in place:

“So Telco’s – and I mean I’ve worked for probably the top three big Telco’s in the country, and all of them have, bar the State owned one, all of them have exactly the same products. You walk out of one, walk into another, they’re having the same conversations. It’s, we need to improve the way we engage with our customers, we need to have online purchasing and remove that kind of sales cycle for the smaller day to day stuff. They’re all having the exact same conversation. You go from one to the next and the next, it’s we have historical mind-sets, so a lot of them are very connectivity focussed, because that’s where they kind of came from, cloud has been an afterthought.... as much as we talk digital, and as much as we are pushing for this digital transformation, a big portion of it is still face to face human interaction, because people buy from people, and they buy in the confidence they have in that person. And even for companies that have gone completely digital, and they’re all online sales, you’re buying in the confidence you have in the people of that organisation. It’s a customer service, it’s all of that. So I can go to 10 different shops and buy the same item online, I’d buy from the shop that I have confidence in because their returns policy, and their way that they communicate, and the little human touches in-between, that’s what I buy into. Not just – I’m not clicking a buy button because it’s on the website, I’m taking it because I have confidence in the organisation that backs it up.”

Structural Changes

A key finding in the results was that digital transformation in the telecommunications space requires a fundamentally different operating model and structure in order to

become a digital operator. Selling connectivity and selling cloud are two very different things even though they both fall under the banner of telecommunications. They work in different ways, they build in different ways, and the way the organisation engages with customers is very different. The tension between these two fundamentally different operating models makes it impractical to operate both types of businesses using the same organisational structure. To avoid pulling the traditional and digital operating models apart, both of them require a single view in the system to enable customer business and have a certain customer engagement model. That may be achieved in different ways, but the required outcome is to pull the business together for a single integrated view of the customer and other stakeholders. Participant 3 describes it as follows:

"All of it put together a bunch of, I would say, requirements or the needs, capability needs all across the domains, right from customer journey to what happens in the network. And also the interactions with other licensed operators or third parties, because you know these days you do business not just yourself and the customer, you've got another party involved which is your – could be suppliers, it could be partners, or in some cases you go jointly with another provider to provide a service to a customer. Which is really common to see these days. So which is a concept of B2B2B2B2X."

A major challenge is how to bring the new products together with the old systems, old processes, and old mentalities, but with an innovative way of thinking. This is a very different and difficult change to implement and will require a complete shift in how the business operates. Given the proposed strategy to sell the services to help other businesses transform, the organisation first needs to make it a success for itself if it wants to gain sufficient credibility to sell that change to others. This again highlights how critical it is for leadership to develop an appropriate organisational structure for the agreed digital transformation. Some participants were adamant that the organisation should assemble a team which would be fully responsible for digital transformation work, because the view is that the company is probably not structured for transformation. In

terms of responsibility for digital transformation strategy, Participant 1 expressed the following view:

“biggest mistake we are making in the industry that we are taking the title chief digital officer claiming that the leadership of a chief digital officer will sort out your problems and everything will be digitised. That’s a very silly mistake.”

Financial Aspects

Looking at the business financials, Participant 1 had the following to say:

“there is a lot of pressure on the top line, because everybody would like to gain customer market share. Gaining customer market share in small markets like Africa, the total Africa is less than the market cap of a small telco in the US, and you know that for a fact. So everybody is trying to capture the market and all that way it cuts our market share. But what happens over the time, the value share of the market are depressing... Tanzania used to be almost three years back, 2015, a market of an average value of 1.6 billion dollars. Today the market is struggling with 750 million dollar. Why? Because everybody was fighting for customer market share, ...[indistinct] rising and what happened by the end of the day, the market lost ...[indistinct], almost 60% of the value. While all mobile operators are struggling now to bring the tariffs up because this could be anti-competitive and there will be against either customer rights or human rights.”

5.3.3. Conclusion

Research Question 1 asked, how do telecommunications service providers define digital transformation? The results showed that business leaders in telecommunications organisations also do not have a clear definition for digital transformation. The leaders identified technology automation, customer interactions, People-Process-Technology, culture, and competition as the critical elements that would form part of a definition for digital transformation in their space. The effect of this is there are several models and frameworks that try to provide guidance on how to set a strategy for digital transformation. The findings show that most of the responses are aligned with the Key

Digital Transformation Strategy Decisions model which recommends setting a strategy based on considerations about the Use of Technologies, Changes in Value Creation, Structural Changes and, Financial Aspects. This can provide the leader some structure in how to drive digital transformation.

5.4. Research Question 2:

What competences do telecommunications service provider business leaders need for the successful digital transformation?

The responses to the question about which the most important digital transformation competences are showed to be agile in thinking, customer experience and take the people with you (collaboration) as the top 3 competences. Below is the full list on showing how grounded each code is referring to the frequency mention and density referring to interconnection with other competences.

Table 4: Competences Frequency Mentioned

Code	Grounded	Density
to be agile in their thinking	27	4
customer experience	23	6
take the people with you	23	6
basic hands-on digital skills	18	2
ability to strategize	16	9
different operating model	11	0
Big data innovation insights	10	1
an attitude of learning	10	1
understanding of platform strategy	8	3
credibility	8	4
Telco lack of leadership example	5	3
basic business sense	4	4

The literature review in Chapter 2 presented a competence architecture model in Figure 2 (Roe, 2002) which defines competences as a composition of eight ingredients. Abilities, personality traits and other more stable characteristics are the foundations for an individual to learn through an education system. Knowledge, skills, attitude and

elementary competences, referred to as sub-competences, are thus learnt through one's education and go on to shape an individual's unique competences. Chapter 2 also showed the Molecular Leadership Competency Model which grouped competencies required for leadership in the digital age as Intelligence Quotient, Emotional Quotient, Digital Quotient, Agility and Adaptability Quotient, Socio-Cultural Quotient and Creativity and Innovative Quotient (Mdluli & Makhupe, 2017). This section will outline the results from this study of the most important leadership competences for digital transformation in the telecommunications space.

5.4.1. Intelligence Quotient

The study found that leaders need resilience to persevere when embarking on digital transformation. This will require a leader who is passionate about the transformation and believes in its importance. Another competence identified was basic business sense, which requires strong analytical skills for business processes, a process driven approach, and an understanding of business and systems. This will help identify the business pains and what the system can accommodate. Part of business sense is being able to influence the other leaders, which Participant 1 explained as follows:

"Because most of the organisations are looking for balance sheets rather than customer experience. And from there we start with a conflict, because if you start measuring customer digitisation, or digital transformation compared to dividend to the shareholders everybody will go to the boardroom and will request dividend than digital transformation. So the crack of the matter is the leadership have the buy in from the boardrooms to digitise."

The other competence identified as being important in a leader, is good learning skills, because if they have that ability, then it will benefit the others who will learn from the leader. This ability to acquire additional skills is vital in the telecommunications space. Having open-mindedness gives the leaders a clear vision of where to lead the followers. Participant 6 said:

“The first thing is we need leadership. Sometimes we have people who are in leadership but who are not leaders, and I think that we need people who are trained to be leaders, who know what leadership is and who can basically influence people. I believe the best and the most important part of leadership is influence, to be able to influence people to do certain things, things that they think they don’t need, but which, as a leader, you know that they need and is important for the company.”

The findings showed that leadership also needs to be strategic, needs to understand what’s happening in the world, to scan the environment and understand what actions to take in order to take the organisation into the future. Leaders need to be visionary and not too comfortable with the organisation’s status quo. The leader must also have credibility so that followers may have confidence in their ability to drive significant change and to lead people. Given how complex digital transformation is, leadership needs to stay the course and motivate the team through periods of discouragement and uncertainty. Some participants felt that leaders need to show decisiveness and clarity of the road map for the initiative to retain focus. Forecasting and planning for any obstacles, as well as the ability to resolve problems were also key competencies that stemmed from the findings.

5.4.2. Emotional Quotient

In the area of EQ, customer-centricity was a key catchword in the responses of participants. Participants explained that a leader or employee must always put themselves in the shoes of the customer, and decide if they would consider buying a product or service from their own company. Participant 6 said the following when explaining the need for leadership competency in change management:

“Digital transformation is more of a mind-set than an actual activity or implementation. Technology would always exist, but it’s the approach to that, to the problem or the

division of businesses that put the technology to work. So I think change management is something that leaders need to be equipped with, because change is constant but people's reaction and acceptance of change is often different. So change management is something that is very, very big when it comes to skills that leadership needs to have."

Another major EQ competency identified in the findings was communication. It was argued communication becomes most critical in digital transformation because the manner in which a massive change is communicated to an audience of employees, customers, or anyone else, is crucial to how it is received. Participant 12 explained:

"Communication, first of all, because as a leader you are not really the one who is going to be the technical architect of digital transformation. But you are supposed to be the one who's going to regularly communicate to everyone else. And as I said, remember, with the culture issue, the moment that everyone else sees that, okay, our leader is communicating on a regular basis, frequently, or using different channels, adoption will actually increase."

A number of respondents argued that people see technology as a replacement for humans, rather than as an enabler. In order for change to commence, the leader must have a strategic view of the next step, and how to lead the business through it. Change is not just about the digital side, it also entails organisational culture, as well as the outward view of the business to the market. A leader must be open minded to receive suggestions and get an understanding from skilful people who might have very good ideas on how to improve processes through digital transformation. The competence to listen and the willingness to change and implement what is expected by others, are also vital elements of EQ competencies which were identified by the participants of this study.

5.4.3. Digital Quotient

One of the DQ competencies that came out of the research findings was the ability to define a strategy inclusive of digital components. One example presented was:

“like let’s say I’m a sales and marketing person, my goal is to actually improve the funnel, to get more leads. So how do we actually create – what kind of technologies would I use, how they would perform, how I would be able to make use of the technology to harvest leads, for example. You’ll have various methods, traditional methods of capturing the leads through manual methods or interactions that you have.”

The research showed that the CIO or CTO should have technical skills to the point of being able to write code and the workforce, in turn, should have excellent business acumen to understand the big picture of where and how it relates to their work. It is key for leaders to have a good understanding of new technologies which are going to impact future trends like IoT and 5G. The leader must be able to execute strategy in relation to a digital customer’s behaviour, understand, and then strategically position and execute that strategy around a digital age customer. Participant 6 had the following views in this regard:

“it’s important to challenge leaders to also improve on their digital skills. Whether it’s understanding analytics, understanding how it works in the back end, in the digital space, because it’s easier for you to influence something when you have an idea of how it works. So I think for the senior level, basic digital skills, even when it comes to communication, advertising, segmentation, customer understanding, all the way down to things like analytics and a little bit of, even if it’s just basic coding, these are skills, hard skills and technical skills that I think the leaders need to begin to at least try their hands on.”

5.4.4. Agility and Adaptability Quotient

The results showed that leaders need to be agile and have the ability to quickly adapt to and accept change, especially given the rapid rate at which change happens during digital transformation. It is also crucial for leaders not to resist change as that can completely block the process. With agility and adaptability comes rapid pace, so leaders should have the ability to make quick, informed decisions. Participant 5 explains:

“that ability to analyse the success or value in a product is maybe going right back to the beginning of key competencies, your ability to analyse and decide, yes or no, quickly, is vital in try something, put it in, try it, if it works, fantastic, grow it bigger. If it doesn't, switch it off, move on to the next one. And the digital world that we have now has enabled us to do that.”

5.4.5. Socio-Cultural Quotient

The findings showed that it is more sustainable to retain some of the legacy leadership and resources in order to change the culture, because one of the very important components of digital transformation is an assessment of culture readiness. Management's role in culture change is driving the culture, the adoption of tools, and the company's overall appearance to the market. Leaders need to remain constantly up to date on industry trends worldwide, as well as consumer insights and consumer demands. For this reason, data literacy becomes critical, with participant 3 arguing as follows:

“As a business leader, you should be – your data literacy should be very high. So you should be able to actually understand the raw data to produce the insights, because they are really good tools available these days, the dashboards or any of them. So I see a world of everyone to be a citizen data scientist. So one should be able to – one should be proficient to actually look at the numbers, understand the numbers and to do

slice and dice, create their own what if scenarios, because they are the ones who are creating the business modelling. They need such skills.”

5.4.6. Creativity and innovative Quotient

A key competency is the ability to prioritise projects and tasks based on importance, as well as a clear understanding of how to plan strategy around digital transformation. Leaders must translate ideas or creativity into actions to give their followers certainty and belief in the vision. Another critical competence that was identified was design thinking, which entails creating solutions to problems that exist and of which people are aware or unaware. Participant 9 articulated this as follows:

"innovative in terms of looking inside or looking at what exactly drives growth in this industry."

5.4.7. Conclusion

The results for research question 2 showed that digital transformation for telecommunications service providers requires some nuanced competences beyond the traditional leadership skills. This is also confirmed in the literature review where several propositions are presented for leadership competences that can help drive digital transformation. The Molecular Leadership Competence Model is confirmed by the findings as most of the competences identified by participants can be grouped into IQ, EQ, DQ, AAQ, SCQ and CIQ (Mdluli & Makhupe, 2017). The following chapter will discuss these results in relation with the literature review from chapter 2.

Chapter 6. Discussion of Results

6.1. Introduction

This chapter discusses how the results presented in chapter 5 above are interrelated with the literature review in chapter 2 and answer the research questions asked in chapter 3 which were derived from the literature review. Analysis and interpretation of these results will add to the body of knowledge on leadership competences for digital transformation based on findings from interviews of 12 business leaders in an African telecommunications organisation.

6.2. Discussion of Results for Research Question 1:

How do telecommunications service providers define digital transformation?

The first research question of this study set out to investigate what definition would emerge from business leaders of telecommunications service providers which is part of the communications sector that the literature review positions as the most disrupted industry by digitalisation. Thus, the research question informed the semi-structured interview questions that generated the results from the 12 participants of this study. To get a consolidated view of what digital transformation is the study looked at the three aspects of how it is defined, what strategy concepts have been pursued, and how leadership play a role in driving it.

6.2.1. Digital Transformation Definition

In chapter two, the literature revealed several varying understandings of how to define digital transformation and that there was no common understanding or acknowledgement of a definition. Research question 1 was therefore structured to investigate how leaders in the telecommunications space would define digital transformation with the aim of then unpacking the leadership competences according to their definition. The definition that this study was benchmarking the results against identified reinvention of a company's vision and strategy, organizational structure, processes, capabilities, and culture as components of digital transformation (Dunkle &

Gurbaxani, 2019). The results in chapter 5 showed that the respondents, who are all business leaders of a telecommunications organisation, gave varying responses to this definition. The most frequently discussed perspective by the participants in response to how they define digital transformation was technology automation, followed by customer interactions, People-Process-Technology, culture, and lastly competition which had one mention.

Two participants viewed digital transformation as just another complicated way of positioning system automation. Kohnke (2017) agrees that the use of new technologies has been happening throughout history, what is new with digitisation is the level of connectedness and pace of adoption in the ecosystem. Eight of the participants put technology at the centre of digital transformation with the understanding that it is the implementation of well-integrated, very agile and robust IT systems aligned to business processes.

These support systems are meant to improve the performance of business operations. As automation is enhanced, business processes become more seamless and transparent within any eco-system. Another concept that came through was that the use of technology speeds up service delivery through actions that we do in a business. The adoption of technologies was also highlighted as a key element for digital transformation however the main aspect in all these responses was the role of technology. Li, Su, Zhang, and Mao (2018) support this as they also found that digital transformation is induced by the rapid changes in IT which impact business processes, organisational capabilities and market strategy, with emphasis on alignment between business and IT.

Four participants in this study put the customer at the centre of their definition of digital transformation. The general sentiment from the participants is that the main reason telecommunications companies embarked on digital transformation is to provide a better customer experience in accordance with how the customer wants to be served. This also included customer education with specific mention of getting the customers future

ready by enlightening them about what they are going to have in place for their needs to be met in the future. The key element these participants put forward in their responses was that businesses need to offer end to end solutions to ensure customer excellence and address all customer needs with flexibility to accommodate reasonable changes. Specifically looking at it from a telecommunications perspective, the responses were mainly focused on how traditionally minded and more difficult to change people in the industry when it comes to focusing on customer needs as opposed to network and technology improvements. There was also a strong case made for more focus to be put on data driven decisions to proactively improve internal processes and provide a better customer experience.

Kane, Palmer, Phillips, and Kiron (2015) in the literature review on chapter 2 stated that digital strategy is more effective if it is used to transform the business over and above improving customer experience. Another study in the literature review provides empirical evidence that success of organisational digital transformation requires the four categories of customer centricity, governance, innovation and resource attainment according to both IT and non-IT leaders (Mhlungu et al., 2019).

A concerted effort to ensure close alignment and integration between the people, processes and technology of the organisation is where three of the participants focused their definition of digital transformation for telecommunications organisations. Other elements that the participants touched on were to have some site of the customer's needs in drawing up the sales strategy and also have the future in mind while embarking on the digital transformation journey which by this theory was primarily dependant on the integration between people, process and technology. Rao (2018) showed close alignment to these findings that digital strategy is there to transform the other business strategies including IT, services, products and processes. Reis, Amorim, Melão, and Matos (2018) defines digital transformation as various initiatives entailing technological, organisational and social elements.

The key findings from this set of two participants was that they pinpointed culture as the pivotal aspect of digital transformation and made three mentions of it in their responses. The main cultural elements that came out of the research were about a change in mindset to embrace the digital world as well as a complete transformation in how things are done in people's lives. The literature review showed that digital transformation is about companies adapting from the traditional to the digital business environment upon realisation of the fundamental differences. The main differences sited between these two are the fast pace of digital business, dynamic culture and mindset shift, as well as improvement of productivity effectiveness as opposed to efficiency. For companies to be successful in digital transformation they need to be willing to experiment and not fear failure (Kane et al., 2018).

One quotation made mention of competition as part of the definition of digital transformation. This would be an interesting element to investigate given that the disruption of the telecommunication sector now has several varied players who are a competition threat to the traditional players. The literature review also showed that digital transformation is not just about outperforming the competition, but it is also vital for business survival (Kohnke, 2017). Over and above the nuances of customer demands in the digital world, their research showed that organisations also need to contend with tougher competition from a more connected, globalised world because of the digital landscape.

6.2.2. Digital Transformation Strategy

The literature in chapter 2 showed that there are several propositions for effective strategy frameworks that can be applied for digital transformation. This could reflect the lack of a digital transformation definition that is commonly accepted. The multitude of strategy models presented are also a challenge for organisations because they need to select one before they know how to structure the role leadership will play in driving digital transformation. For the purposes of this study the Key Digital Transformation Strategy

Decisions model in the figure 2 from Hess et al. (2016) will be used to explore commonalities and disparities in the responses from the participants.

Use of Technologies

Research showed that there was a perception that people see technology as a replacement for humans, rather than an enabler. The contention from most of the participants in this study was that technology should only be a business enabler for what the business needs to do. The telecommunications industry is best suited to be the enabler of such solutions, be it for the business or for the consumer. José and Rocha (2019) show in the literature review that contrary to conventional belief, digital technology cannot eliminate all jobs, some jobs were just being transformed at a faster pace.

The participants were also of that view that IT needs to have agile methods and an agile workforce in place. By so doing the need for detailed business requirements is minimised as the owner of the requirements becomes more involved in the iterative development process to enable the business quicker, or they will create a shadow IT application themselves as technical functionality has become ubiquitous. The literature review identified common features of a digital culture are having a higher risk tolerance, frequent experimentation, heavy talent investment, and hiring or developing digital leaders with the ability to sharpen soft skills (Kiron et al., 2016).

The findings show that leaders believe the telecommunications industry should be the earliest or the first adopter of digital transformation, because the business must survive by empowering digital services, with digital tools and cloud tools becoming enablers to achieve that strategy. The literature review found that businesses with low maturity in digital adoption tend to focus on technology instead of digital strategy which is what drives transformation, signalling a failure of the appropriate culture change (Rao, 2018). Participants of this study highlighted that the general problem seen in telecommunications is being dependant on investing in specific vendor innovation which

they have no control over. The 5G protocol is a typical example where they can only go with either Huawei or Ericsson. They are left with no option but to adapt to the 5G if they need more capacity or to generate more revenue from data. Thus, the challenge in telecommunications is the eco-system is vendor driven rather than own innovation driven.

The literature review revealed that a culture of transformation and innovation set by leaders with a clear strategy on how to reimagine a digital business will determine the success of the company's digital transformation (Kane, Palmer, Phillips, Kiron, et al., 2015). Respondents of this study showed that there is no clear understanding of what innovation is in the telecommunications space. There is a need to establish what kind of innovation is needed to remain relevant, not just adding additional value adds on top of current connectivity, that is not innovation. The participants argue there is a desperate need for telecommunication companies to think innovatively, in a different way, in this new, competitive landscape. The business needs to redefine itself or be innovative in terms of looking inside or looking at what exactly drives growth in this industry.

Changes in Value Creation

The participants in this study highlighted that in terms value creation the telecommunications world has self-service channels, like the portals or apps which customers can interact and do business with. The portal is programmatic, and software driven on the network to make the support systems more user-friendly. The results showed that value creation had several factors that needed to be considered in identifying the correct channel(s), revenue creation model and future business scope. Service delivery is another consideration because it's mandate is to deliver more services from the order book to attain higher revenue. The main outcome of digitising is a process to makes visibility of the incremental revenue attained seamless and easy to communicate on a monthly basis to increase dividend to shareholders. In the literature review Westerman and Bonnet (2015) showed that for leaders to shift their mindsets they can start by questioning and rethinking the four traditional assumptions that

customers want the human touch, operational processes can no longer be automated, an integrated company lacks agility and innovation, and lastly the strategic assets that brought success in the traditional business will still be of value in the digital age.

Another observation from the findings is the assertion that when creating applications or processes it is best to use the persona approach with the aim of delivering value to a senior business stakeholder, and ultimately the end user. The research found that when it comes to managing customers, the entire value chain is digital. However, the telecommunications market is used to over the counter transactions, so the network operators have really perfected how they reach out to the customers including front door visits using mobile booths, and also through using digital platforms to pay for services, like the mobile money platforms, and also bank integration. Telecommunications providers need to understand that if transforming to an enterprise business there is a significant level of integration, platform capability and data capability required and there would be a gap in the existing digital platform's understanding of how services will be rendered as an IT service provider going forward. Participant 4 highlights some of the how important it is to have these digital platforms and channels in place.

Structural Changes

A key concession from the results is that digital transformation in the telecommunications space requires a fundamentally different operating model and structure in order to become a digital operator. Selling connectivity and selling cloud are two very different things although they fall under the banner of telecommunications. They work in different ways, they build in different ways, the way the organisation engages with customers is very different. The tension between these two fundamentally different operating models make it impractical to operate both types of businesses using the same organisational structure. To avoid them pulling each other apart, both of them require a single view to enable customer business and have a certain customer engagement model. That may be achieved in different ways but the required outcome is to pull the business together for a single integrated view of the customer and other

stakeholders. In the literature review Kane, Palmer, Phillips, and Kiron (2015) emphasise that not technical skills, but the ability to know the business and having ideas of how digital technology can impact the processes and operating model are the most essential skills required to be successful in the digital age and compete now and in the future.

One of the major challenges is how to bring the new products together with the old systems, old processes, and old mentalities, but with an innovative way of thinking. This is a very different and difficult change to implement and will require a complete shift in how the business operates. Given the proposed strategy to then sell the services to help other businesses transform, the organisation first needs to make it a success for itself to gain the credibility to sell that change to others. This again highlights how critical it is for leadership and the board to envision an appropriate organisation structure for the agreed digital transformation. Some participants were determined for the organisation to assemble a team which would be fully responsible for digital transformation work because the view is that the company is probably not structured for transformation. This is supported in the literature which shows that in order to prioritise digital innovation which is now impacting every industry, organisations introduced the c-suite role of a chief digital officer (CDO) (Tumbas et al., 2017). This affirms Kane, Palmer, Phillips, Kiron, et al. (2015) who stated that digitally mature organisations are twice more likely to have one person leading the transformation in comparison to the less digital companies.

Financial Aspects

Looking at the business financials, the findings show that digital transformation adds financial pressure on the organisation as there is a need to finance the day today business as well as the transformation initiative. Furthermore, with transformation comes new products and markets that the organisation is trying to capture against competition at a profitable price. Reis et al. (2018) discusses how businesses embarked on multiple initiatives to exploit the benefits of digital transformation. These initiatives

entailed restructuring of the overall organisation, business operations, processes and products to find ways to govern the sophisticated transformations. Over and above the nuances of customer demands in the digital world, their research showed that organisations also need to contend with tougher competition from a more connected, globalised world because of the digital landscape. The reality in their findings is that although there are several examples and case studies of powerful digital organisations, most were born digital, and for traditional organisations, the transformation journey is proving to be longer and more difficult than expected.

6.2.3. Conclusion

Discussion of research question 1 showed that the literature review is aligned with the findings in chapter 5. There are still a multitude of varied perceptions about how to define digital transformation. Overall the key elements and themes of what the sentiment of a definition should be have started to align with the elements of technology automation, customer interactions, People-Process-Technology, culture, and competition emerging as the key themes contained in a definition for digital transformation in a telecommunications service provider organisation. The literature also presented reinvention of a company's vision and strategy, organizational structure, processes, capabilities, and culture as components of digital transformation by Dunkle and Gurbaxani (2019) which incorporated the themes discovered in the findings of this study. This emergent alignment of a definition is also reflected in the digital strategy findings which confirm the relevance and appropriateness of the Key Digital Transformation Strategy Decisions model in the figure 2 from Hess et al. (2016) for the telecommunications sector as seen in the findings.

6.3. Discussion of Results for Research Question 2:

Which competences do telecommunications service provider business leaders need for the successful digital transformation?

The literature review in chapter 2 presented a competence architecture model in figure 1 by Roe (2002) which defines competences as a composition of eight ingredients.

Abilities, personality traits and other more stable characteristics are the foundations for an individual to learn through an education system. Knowledge, skills, attitude and elementary competences, referred to as sub-competences, are thus learnt through one's education and go on to shape an individual's unique competences. Chapter 2 also showed the Molecular Leadership Competence Model which grouped competences required for leadership in the digital age as Intelligence Quotient, Emotional Quotient, Digital Quotient, Agility and Adaptability Quotient, Socio-Cultural Quotient and Creativity and Innovative Quotient (Mdluli & Makhupe, 2017). This section will outline the results from this study of the most important leadership competences for digital transformation in the telecommunications space.

6.3.1. Intelligence Quotient

The study found that leaders need the resilience to persevere when embarking on digital transformation. This will require a leader who is passionate about the transformation and believes in its importance. Another competence that was identified is to have basic business sense which entails having very strong analytical skills to for business processes, be very process driven, understand business and understand the systems. This will help identify the business pains and what the system can accommodate. Part of business sense is being able to influence other leaders. The other competence identified in the findings is a leader that is good at learning because if they can learn, everyone else can learn, because of the leader's ability to influence. This ability to take on additional skills is vital in the telecommunications space. Having open-mindedness gives the leaders a clear vision of where to lead the followers, including consumers based on demand for services, quality and price. Mdluli and Makhupe (2017) explain that IQ relates to traditional leadership competences such as to think, reason, analyse, be innovative, learn unlearn and relearn new concepts, which remains at the core of leadership. Managerial cognition is the managers personal decision-making framework which comprises their knowledge, understanding and sensing of market trends, geopolitics and future development predictions, in order to steer and transform their organisation accordingly. (Li et al., 2018)

The findings showed that leadership also need to be strategic, need to understand what's happening in the world, need to scan the environment and understand what actions to take in order to take the organisation to the future. Leaders need to be visionary and not too comfortable with the organisation's status quo. Another major factor is for the leader to have credibility based on confidence in their abilities to drive significant change, and their ability to lead people. Given how complex digital transformation is, the leadership needs to stay the course and motivate the team through several quarters of discouragement and uncertainty. In contrast some participants felt the leader needs to show decisiveness and clarity of the road map is for the initiative to retain focus. Forecasting and planning for any obstacles, and not resolving them are also key competences that stemmed from the findings. Tumbas and Berente (2017) showed that the CDO must be extremely involved with and lead any strategic changes to organisation processes, products, services and business model.

6.3.2. Emotional Quotient

When it comes to EQ, customer-centricity was a key finding from the responses of the participants. The responses explained that a leader or employee must always put themselves in the shoes of the customer and think about how it would work, and would they consider buying a product or service from their own company. Another major EQ competence identified in the findings was communication. It was argued that it even becomes more critical in digital transformation because how one communicates a massive change to an audience of employees, customers, or anyone else, is fundamental as leader. The literature review also found that one of the key capabilities a leader should have is user-centricity by putting customers and clients first as potential users (Hearsum, 2015).

The respondents argue that people see technology as a replacement for humans, rather than an enabler, thus a lot of change must happen. For change to commence the leader must have a strategic view of the next step, and how to lead the business through it. Change is not just about the digital side, it also entails organisational culture, as well as

the outward view of the business to the market. A leader must be open minded to receive suggestions and get an understanding from skilful people who might have very good ideas on how to improve processes through digital transformation. The competence to listen, and the willingness to change and to be a person that can implement what is expected by others are also vital elements of EQ competences which were identified from the results of this research. According to Hearsun (2015) digital leaders should have the capability to collaborate, work with and challenge colleagues at all levels. They must also be a listening leader where everybody at all levels has a platform to voice their opinion. They should also have humility, compassion and humour (Hearsun, 2015).

6.3.3. Digital Quotient

One of the DQ competences that came out of the research findings was the ability to define a strategy inclusive of digital components. The research showed that the CIO or CTO should have technical skills to the point of being able to write code and the workforce in turn should have excellent business acumen to understanding the big picture of where and how it relates to their work. It is key for leaders to have a good understanding of the new technologies which are going to impact future trends like IoT and 5G. The leader must be able to execute strategy in relation to a digital customer's behaviour, understand and then strategically position and execute that strategy around a digital age customer. The literature review showed that a digital leader must be able to distinguish between digital technology and digital culture as well as to understand the impact of technology on the business environment (Hearsun, 2015).

6.3.4. Agility and Adaptability Quotient

The results showed that leaders need to be agile with the ability to quickly adapt to and accept change, especially given the rapid change that happens during digital transformation. It is also crucial for the leaders not to resist change as that can completely block the process. With agility and adaptability come rapid pace, so leaders should be able to give quick informed decisions. Sawy and California (2016) explain the need for a different kind of people mindset and skillset, which alludes to how everyone

in the organisation from top management downwards needs to be more flexible and willing to innovate, experiment, occasionally fail and upskill themselves with the relevant digital knowledge. Hearsun (2015) also noted that it is key for digital leaders to have the adaptability to change to new conditions appropriately, often and several times. The leader must also understand the need to have an appropriate pace which is not always fast (Hearsun, 2015).

6.3.5. Socio-Cultural Quotient

The findings showed that it is more sustainable to keep some of the legacy leadership and resources in order to change the culture, because one of the very important components of digital transformation is an assessment of culture readiness. From a management point of view, it's driving the culture, driving the adoption of the tools, driving the overall business to appear a certain way to the market. Leaders also need to remain constantly updated with trends, world trends, in terms of what's going on, as well as consumer insights, take insight into what consumer demand is. For this reason, data literacy becomes critical. Kane, Palmer, Phillips, and Kiron (2015) state that companies in the digital age need to know what data will be useful from the digital technology available, and how to use that information in an agile way for maximum benefit in alignment with their digital strategy. Digital leaders also need systemic intelligence and understanding of the organisation human systems, as well as self and general awareness (Hearsun, 2015).

6.3.6. Creativity and innovative Quotient

A key competence that must have is an appreciation for the prioritising projects and tasks based on importance and having a clear understanding of how to plan your strategy around digital transformation. Leaders must translate ideas or creativity into action to give their follower certainly and belief of the vision. Another critical competence identified is design thinking which entails creating solutions to problems that exist and people are aware of, or even problems that exist and people are not aware of. The study

by Hearsom (2015) finds that digital leaders need to have innovation by willing to take risks, fail and learn.

6.3.7. Conclusion

Discussion of research question 2 showed that by and large the literature review supports the results in chapter 5 which is an indication that there is a concerted effort and progress is being made in establishing the key competences required for digital transformation. This study having been conducted with leaders of a telecommunications service provider all touched on most of the leadership competences found in the literature review. Digital leadership is different to traditional leadership because leaders now require skills to handle the fast pace of doing business, influencing employees with a traditional mindset to shift with the changing organisational culture, having a flexible and distributed workplace, and coping with much higher levels of productivity expected (Kane et al., 2019). Findings from the study showed that a transformative vision, being forward-looking, having digital literacy, and adaptability are the new skills required for the digital age. With these new skills the research stated that a good leader also requires the ability to articulate a good business case, make savvy investment decisions with time and resources, retain leadership responsibility for the transformation, and empower employees to succeed, as core traditional business leadership skills (Kane et al., 2019).

Chapter 7. Conclusion

7.1. Principal findings

This study looked at the competences required to lead digital transformation for a telecommunications organisation. Existing literature was reviewed on the topic to identify areas that needed investigation. The review showed that scholars have no common definition for digital transformation and as a result there are several frameworks and models that try to guide on how to establish a digital strategy, but the ideal model is yet to be found, especially because here is no common definition. The study also looked at the role of leadership in driving digital transformation and the literature showed that leaders lacked guidance and direction on how best to implement it due to the sparse theory. The communications sector which includes telecommunications was identified as one of the industry's most impacted by the digital disruption.

Interviews were held with leaders of an Africa telecommunications service provider to investigate how they defined digital transformation within their industry and, what competences they considered key to drive the change. The main findings that emanated from the study were that there is alignment between how literature has been defining digital transformation and the definitions given by the participants of this research. The elements that this study presented as essential for any definition of digital transformation are technology automation, customer interactions, People-Process-Technology, and culture. Furthermore this research reaffirmed that relevance of the Molecular Leadership Competency Model (Mdluli & Makhupe, 2017) in capturing leadership competences for digital transformation. The IQ competence was the most frequently mentioned in the findings followed by EQ. This shows the need for leaders to make use of IQ to learn, unlearn and relearn the new technologies and automation required in the digital age as analysed from the definition findings. The second most frequent competence is EQ which shows how important it is for the leader to engage with customers and people which are part of the digital transformation definition outlined.

The research showed that the top 5 most frequently mentioned responses about the definition of digital transformation are as follows:

- take the people with you
- customer experience
- basic hands-on digital skills
- ability to strategize
- cultural and business change

It was confirmed that the top 5 most frequently mentioned responses to the question about the most important digital transformation competences in general was:

- to be agile in thinking
- customer experience
- take the people with you
- basic hands-on digital skills
- ability to strategize

7.2. Implications for management and other stakeholders

This study provides management and stakeholders in the telecommunications sector with some insights about the elements they need to pay more attention to when embarking on digital transformation. This also helps the business know where they need to channel more investment, so they are ready for the future and also informs the talent management plan of the organisation. This research confirmed that the Key Digital Transformation Strategy Decisions Model is relevant and useful to help guide formulation of digital strategy based on the responses received from this study.

Leaders need to equip themselves with the requisite skills to ensure they are collaborating and taking their team with them on the journey. They need to ensure they

learn, unlearn and relearn the various digital competences that have been outlined in the findings of this study. A good way to assess how those leading digital transformation in the organisation are doing is to include elements of the discussed competences in the balanced scorecard or key performance measures so that they can track progress of leaders in upskilling themselves as well as monitor if they are making use of the other competences in their other business engagements.

7.3. Limitations of the research

The study was only conducted with leaders from one organisation in the telecommunications sector, this should have been spread out to other organisations to be more representative.

The sample was only made of leaders in top or middle management and left out other levels within the organisation

The researcher was a digital transformation practitioner and sometimes the bias during the interview or distraction by an interesting side note crept in and that removes from the richness of the interview

7.4. Suggestions for future research

Future research in different industries to explore if they share the same understanding of digital transformation, strategy and competence as was discovered in the telecommunications sector. It would also be of great interest to research negative behaviours that are not suited for digital transformation and understand the type of behaviour that will not work for such endeavours.

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Appendix 1: Atlas-ti Code Group List

Document Group	Codes
Competencies	48
Define Telco DX	39
DX Leadership Role	33
ICT DX Importance in Africa	26
Senior Leadership DX Readiness	25
Telco Challenges	17
Personal Competencies for DX	17
Most important DX leader competence	12
Industry Experience	9
Region / Location	4
DX in Africa	4

Appendix 2: Interview Discussion Guide

No.	QUESTION
1	What is your understanding of digital transformation in the telecommunications industry?
2	How important do you think digital transformation is for telecommunication providers?
3	Based on your experience how essential is leadership for digital transformation in telecoms?
4	Which competencies do you think are required by a leader for the leadership of digital transformation?
5	What is your understanding and definition of each of the leadership competencies you have mentioned above?
6	Which of these competencies do you think are the most critical?
7	Why do you consider these to be the most critical?
8	Which competency do you believe has been the key for you to drive digital transformation in your organisation?
9	What additional competencies do you believe leaders should develop for effective digital transformation in telecoms?
10	How is your organisation preparing the senior leadership team to lead digital transformation across the organisation?

Appendix 3: Interview Letter of Consent



INTERVIEW CONSENT FORM

LEADERSHIP COMPETENCIES REQUIRED FOR DIGITAL TRANSFORMATION IN THE TELECOMMUNICATIONS INDUSTRY

Researcher: Kudzal Kunaka, MBA Student at Gordon Institute of Business Science (GIBS), University of Pretoria

I am conducting research on the leadership competencies required for digital transformation in the telecommunications industry. I am trying to find out more about which competencies are more important or which need to be developed for leaders in the telecommunications sector to be effective when it comes to leading digital transformation in these organizations.

The interview is expected to last about an hour, your participation is voluntary, and you can withdraw at any time without penalty. The interview will be audio recorded for my benefit to ensure that I do not lose any key points, the recording is also voluntary, and you may choose not to be recorded. All data will be kept confidential and any references used will be kept anonymous. All data will be reported without identifiers. If you have any concerns, please contact my supervisor or myself. Our details are provided below:

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0765679955

0828889563

Participant's Name: _____

Signature: _____

Date: _____

Researcher's Name: _____

Signature: _____

Date: _____