Gordon Institute of Business Science
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# Critical competencies of executive ICT leaders at Mobile Network Operators in South Africa

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## ABSTRACT

The operating environment for Mobile Network Operators (MNOs) in South Africa is undergoing continual change and is becoming increasingly complex. For organisations to cope with this increasingly complex environment, literature proposed that organisations need to operate as a Complex Adaptive System (CAS), and proposed competencies that leaders require, in order to foster this type of environment. Although the MNOs have been described by literature to be operating a CAS, the purpose of this study was to compare what competencies literature stated are required for a CAS, as opposed to what the executive ICT leaders at Mobile Network Operators' stated their competencies are.

To gain an understanding of what critical competencies are required by these leaders, a qualitative, exploratory research design was followed, which included 13 semi-structured, in-depth, face-to-face interviews with executive ICT leaders at three of the major MNOs in South Africa. These executive ICT leaders included: Chief Information Officers; Chief Technology Officers; Managing Executives; Heads of Departments; General Managers; and Executives.

Literature in the complexity leadership field, alluded to 36 leadership competencies which are critical to fostering a CAS and leading in this complex environment. Key findings indicated a gap in the field, whereby the executive ICT leaders interviewed, referenced only 15 of the 36 critical competencies as stated by literature. Furthermore, it was found that although people skills fall within the human resources domain, one cannot negate the importance of this competency within a CAS environment. This study's findings contribute to the extant literature in the field of complexity leadership.

## KEY WORDS

Complexity Leadership
Competencies
Complexity Leadership Theory
Complex Adaptive Systems

## 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.

Date: 7 November 2018

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Signature: _____

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# CHAPTER 1: INTRODUCTION TO RESEARCH PROBLEM

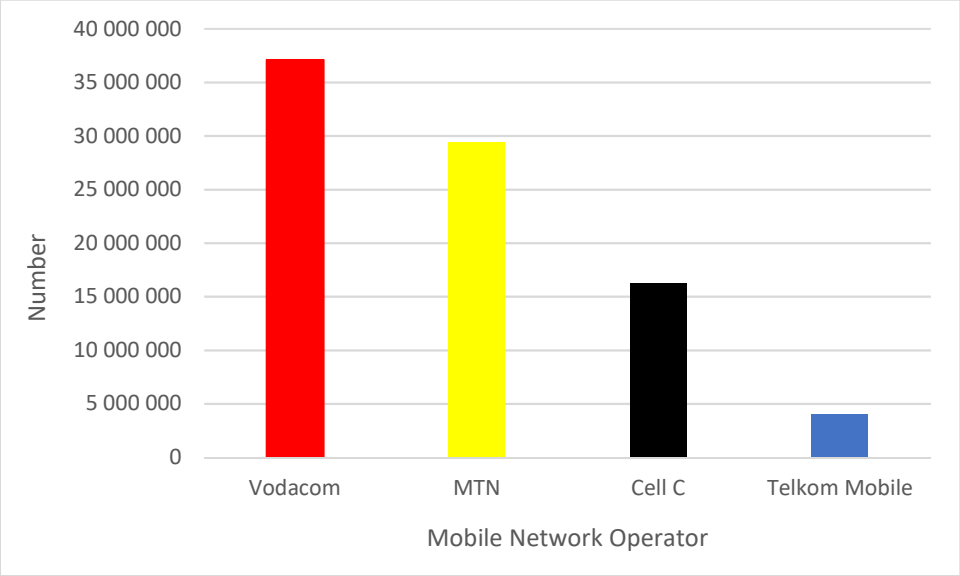
## 1.1 Introduction and Description of the Problem

According to Rodriguez and Rodriguez (2015), the global business environment is currently plagued with challenges, and businesses are operating in a volatile, uncertain, complex and ambiguous (VUCA) world. Many scholars agree that globalisation and the rapid evolution of technology has been the key drivers of these complexities (O'Connell, 2014; Martin, 2007; Hitt, 1998). Globalisation is defined by Ibrahim (2013) as a "term used to describe the changes in societies and the world economy that result from dramatically increased international trade and cultural exchange" (p. 85). As alluded to by O'Connell (2014), this emerging environment is scattered with challenges such as, disjointedness, instability, shifting rivalry, and the need for recreation, change and the sharing of knowledge. Authors argue that the complexity is set to increase, due to connectivity and interdependence increasing (Uhl-Bien & Arena, 2017; Osborne & Hinson, 2011).

Leaders from all levels within the organisation play a pivotal role and are responsible to direct, guide and navigate their company through these challenges, to remain competitive, sustainable and achieve their set objectives. However, scholars agree that the old bureaucratic, top-down approaches to leadership models and theory, are not suited in the knowledge economy (Kutz & Bamford-Wade, 2013; Uhl-Bien, Marion & McKelvey, 2007; Lichtenstein *et al.,* 2006; Osborn, Hunt & Jauch, 2002). Drawing on complexity science, which is defined by Coveney (2003) as "the study of the behaviour of large collections of such simple, interacting units, endowed with the potential to evolve with time" (p. 1058), a complexity leadership framework is proposed for helping leaders lead in this complex environment, with the unit of analysis being a Complex Adaptive System (CAS) (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006). Within a CAS, leadership is not centred around an individual's acts, however, leadership emerges in a non-linear fashion, out of spontaneous events occurring between people and ideas (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). To enable and cultivate this CAS, literature describes certain competencies that leadership needs to possess and actively use. One such environment where a CAS is ideal, is within the Mobile Network Operator (MNO) space. Sammut-Bonnici (2015) alludes that MNOs operate a mixed business model, consisting of a hierarchical system and a CAS which co-exist, as there are interrelationships between numerous agents within this ecosystem, consisting of "regulators, network providers, technology suppliers, and consumers" (p. 1).

Within the South African context, the MNOs are a vital contributor to its economy. These organisations operate within the Information and Communications Technology (ICT) industry. At present there are four major MNOs operating in South Africa, namely: Vodacom; MTN; Telkom Mobile; and Cell C. Both Vodacom and MTN entered the market in 1994, followed by Cell C in 2001, and then 8ta (Telkom Mobile today) in 2010. From a contextual perspective, given that the South African market was unexploited in terms of mobile connectivity, and growing from a low base, these organisations experienced rampant growth both in subscriber base and in revenues over the years. The growth of these organisations was also attributed to by the protectionism of the regulations set by the Independent Communication Association of South Africa (ICASA). Figure 1 illustrates the number of customers reported by each MNO in their 2017 financial year end reports.

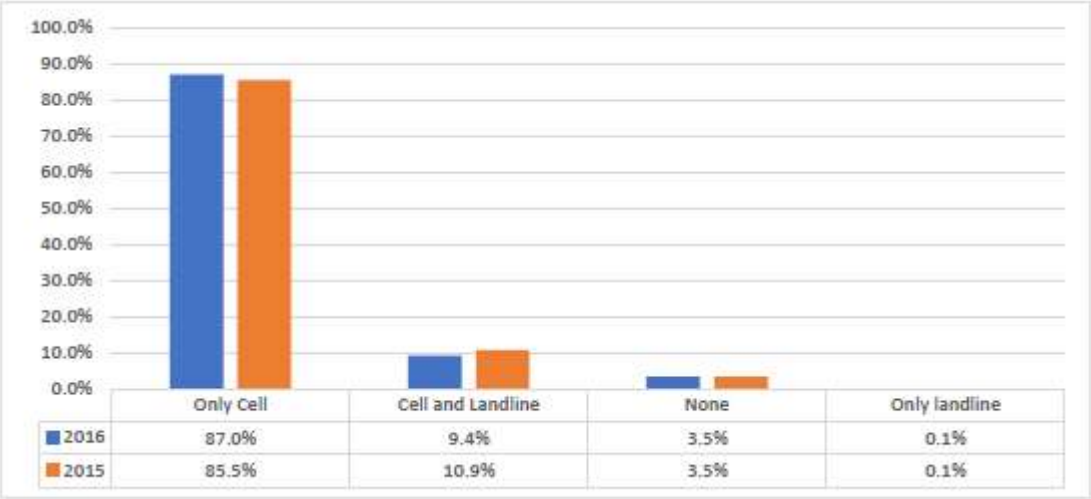
**Figure 1: Number of Mobile Customers per Mobile Network Operator**




**Source:** Synthesised from (Vodacom, 2017; MTN, 2017; Cell C, 2017; Telkom Mobile, 2017)

According to Minges (1999), the deployment of mobile cellular networks is more cost effective and quicker to implement, than fixed line networks. This allowed for exponential growth in mobile connectivity, connecting people in rural areas and society at large. According to ICASA's (2018) report, as illustrated in Figure 2, in 2016 the percentage of households in South Africa who had operational cell phones only, was reported as 87%.

**Figure 2: Percentage of Households who have functional landline and cellular telephone in the Republic of South Africa for 2016 and 2015**




| | Only Cell | Cell and Landline | None | Only landline |
|---|---|---|---|---|
| 2016 | 87.0% | 9.4% | 3.5% | 0.1% |
| 2015 | 85.5% | 10.9% | 3.5% | 0.1% |

**Source:** (ICASA, 2018, p. 5)

However, the environment that these organisations used to operate in, is evolving and is undergoing change. From a regulatory perspective, between 2009 and 2017, ICASA reduced the mobile termination rates (MTRs), which are the rates that each MNO charges the other to connect to their network, by 90% (Hawthorne, 2018). From a technological advancement perspective, Boye and Bäckman (2013) stated that because of smartphone capabilities, the revenues of certain MNOs, in terms of their voice and text messaging offerings, have stagnated and are on the decline. From a competition perspective, new entrants such as Rain, which is a data only network operator, launched in South Africa in 2018 (Rain, 2018), as well as new entrants that have entered the market, in terms of over-the-top (OTT) players, which are 3rd party companies that deliver mobile services via platforms (Boye & Bäckman, 2013).

Therefore, given these factors, the environment in which these MNO organisations operate has become fast-paced, dynamic and complex. Adding to the complexity, these MNOs have diversified from offering only wireless connectivity services for voice and data, to becoming a converged solutions partner, offering a multitude of products and services, namely: wireless and fixed-line offerings, cloud hosting, software; and Internet of Things (IoT) solutions, to name a few. To cope in this complex operating environment, authors argue that organisations need to operate as a CAS (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007).

These MNO organisations play a pivotal role, not only in providing connectivity services to people and businesses across South Africa, but also being an enabler for a multitude of

benefits that are generated by people and businesses from the consumption of products and services offered by these organisations. And given how their operating environment has changed and become more challenging, these organisations should have CAS leadership, and the leadership of these organisations require critical competencies to foster this CAS environment.

Noting the scholarly literature above, and that little evidence was found on the critical competencies that executive ICT leaders at Mobile Network Operators possess, the research seeks to understand what critical competencies are required by executive ICT leaders at Mobile Network Operators to lead in their CAS.

## 1.2 Purpose of the Research

The operating environment that these MNOs used to operate in, was a more reliable and stable environment, characterised by certainty. However, as noted, their operating environment is evolving and is undergoing change, whereby the environment has become fast-paced, dynamic and complex. As such, given the increasingly complex and dynamic operating environments that leaders must operate in today, alternative leadership paradigms are required, as the traditional hierarchal forms of leadership do not suit the current environment (Kutz & Bamford-Wade, 2013; Uhl-Bien *et al*., 2007; Lichtenstein *et al.,* 2006; Osborn *et al.,* 2002). Drawing from complexity science, the alternative leadership paradigm is "Complexity Leadership Theory" (Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006). Leaders who operate in a CAS, require competencies that enable and foster this type of environment.

However, whilst a number of authors who describe the leadership competencies required to enable and foster a Complex Adaptive System (CAS), and to lead in this complex environment (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Kutz & Bamford-Wade, 2013; Osborne & Hinson, 2011; Kutz, 2008; Uhl-Bien *et al.*, 2007; Bennet & Bennet, 2003), others argue that leadership competencies cannot be the same across all organisations and should be aligned to the context in which the businesses operate (Boyatzis, 2008; Hernez-Broome & Hughes, 2004).

Considering the above, the purpose of this study is to compare what competencies literature states are required for a Complex Adaptive System, as opposed to what the executive ICT leaders at Mobile Network Operators' state their competencies are. Classified as executive ICT leaders, they require competencies that enable this type of environment, conducive to operating their CAS.

## 1.3 Research Problem

Although some authors in the field of complexity leadership describe competencies that are required to operate within a CAS, other authors argue that further research in this field is required: (1) research in the leadership field is urgently required, specifically on how to develop people's abilities to lead in organisations that are adaptive (Uhl-Bien & Arena, 2018); (2) acknowledging that research in the field of complexity leadership is in its early stages and that more material research is required in this field (Uhl-Bien & Arena, 2017; Avolio, Walumbwa & Weber, 2009); (3) leadership competencies cannot be the same across all organisations and should be aligned to the context in which the business operates (Boyatzis, 2008; Hernez-Broome & Hughes, 2004); (4) further research is required to understand the competencies leaders need to possess, in order to enable their organisations to effectively operate as a CAS (Clarke, 2013); and (5) competencies can never be static and are continuously changing, due to the nature of the changing context (Klein, Edge & Kass, 1991), it was found that a gap exists in literature, and further research in this field would be beneficial.

The research aims to add to academic literature by describing ICT executives' perceptions of competencies identified, that are used within a CAS in the MNO environment that has not been covered within the literature. This research also aims to benefit executive ICT leaders at the Mobile Network Operators, highlighting any gaps that may exist in competencies required to enable, foster and operate in their CAS environment.

## 1.4 Research Scope

The scope of this research was to identify and evaluate the competencies required by executive ICT leaders at Mobile Network Operators in South Africa, that are required to lead in their CAS. For the purposes of this study, Complexity Leadership Theory (Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006) is the lens.

## 1.5 Research Structure

The research has been structured as follows:

- Chapter 2 presents the literature review and presents an argument outlining the need for the research to be conducted.
- Chapter 3 presents the research questions for the study.

- Chapter 4 presents the research methodology and design and describes the following: population; unit of analysis; sampling method and size; measurement instrument; validity and reliability; data gathering process; analysis approach; and research limitations.
- Chapter 5 presents the main results.
- Chapter 6 presents the discussion of the results in terms of the specified research questions.
- Chapter 7 presents the study conclusions and provides recommendations for stakeholders and for future research.

# CHAPTER 2: THEORY AND LITERATURE REVIEW

## 2.1 Introduction

This chapter encompasses the literature review, which is used to discuss the major constructs associated with this study and to provide the theory to support the purpose of this study. The purpose of this study is to reflect a comparison between what competencies literature states are required for a Complex Adaptive System, as opposed to what the executive ICT leaders at Mobile Network Operators' (MNOs) state are their competencies.

The literature review begins with a discussion of Complexity Leadership Theory, which is a proposed alternative leadership paradigm that caters for the knowledge economy. Next is a discussion about competencies required of leaders to thrive in a CAS.

## 2.2 Complexity Leadership

A multitude of definitions on what leadership is, have been proposed by many leadership research scholars. Yammarino (2013) summarises the essence of these numerous definitions into the following proposed definition:

> "Leadership is a multi-level (person, dyad, group, collective) leader-follower interaction process that occurs in a particular situation (context) where a leader (e.g., superior, supervisor) and followers (e.g., subordinates, direct reports) share a purpose (vision, mission) and jointly accomplish things (e.g., goals, objectives, tasks) willingly (e.g., without coercion)" (p. 150).

Confirming the importance of leadership, Yammarino (2013) stated that an organisation cannot achieve anything without leadership, and that leadership happens throughout the organisation, at all levels, be it in a formal or informal manner.

According to Avolio, Reichard, Hannah, Walumbwa and Chan (2009), leadership theory and research spans over a hundred years, and as stated by Avolio *et al.* (2009), these earlier leadership models were positioned to cater for hierarchical organisational structures that were embedded in the industrial era. As described by Uhl-Bien and Arena (2018), given the increasing environmental complexity, today's leaders face a paramount challenge in which they need to gear and equip their people and organisations to be able to adapt to this changing environment. Considering this need, the authors acknowledged that: (1) there is scant information in this area; (2) emergent research is being done in this field, although it is being

done in disparate pockets (Uhl-Bien & Arena, 2018). In order to survive, as an organisation's environment changes, it needs to be able to adapt (Schumpeter, 1949, as cited in Uhl-Bien & Arena, 2018, p. 90). Given that the environmental context has become dynamic, the overarching work of Teece, Pisano and Shuen (1997), alluded to a firm's dynamic capabilities, which allowed firms to exploit their particular competencies to cope with environmental changes. Noting that the landscape for leadership has changed dramatically and given today's complex operating environment, there is a growing urgency in leadership literature, pointing to the need to adapt these earlier top-down leadership models to more suitable ways of leading in the knowledge economy (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.,* 2007; Lichtenstein *et al.*, 2006).

Nye (2016) supports the published scholarly literature and stated that technological change has had a profound impact on organisational structures and leadership. Osborn *et al.* (2002) questioned the assumptions made in previously published leadership literature and requested that a more open approach be taken when performing leadership research. Due to the dynamic nature of the current environment, and the many complexities and challenges brought on by globalisation and technological advancement, leaders will have to adapt their approaches, in order to survive. In changing the philosophy of how leadership is seen, Osborn *et al.* (2002) argued that a dependent relationship exists between leadership and the specified context. According to Osborn *et al.* (2002), leadership occurs in four contexts, namely: stability, whereby a firm's context is static and predictable for leadership; crisis, whereby a firm's context is under threat with minimal response times but is semipredictable for leadership; dynamic equilibrium, whereby a firm's context is generally stable but shifts according to priorities; and edge of chaos, whereby a firm's context is placed squarely between stability and disorder, in which CAS moves towards. Table 1 describes these four contexts that leaders operate in, and it is vital that leaders build competencies that enable them to lead and manage in each of these different contexts.

Further arguments are made by the authors, indicating that leadership has extended past the superior subordinate relationship, to include the collective influence of leaders encompassing the entire system (Avolio *et al.*, 2009; Osborn *et al.*, 2002). Kutz and Bamford-Wade (2013) argued that today's leaders need to be contextually intelligent. A leader's contextual intelligence is described as, "the ability to adapt their skills and choices to the changing needs of their followers and changing situations" (Nye, 2016, p. 6).

**Table 1: Context and key aspects of contextual leadership (Osborn et al., 2002, p. 800)**

| Key aspects | Context 1 | Context 2 | Context 3 | Context 4 |
|---|---|---|---|---|
| | Stability: conditions between and among such macro variables as external environment, structure, size, and technology assume static fit. Leadership mechanically adjusts to and creates internal operations to enhance system goals for various fits. Steady trajectory of operations and goals for predictable conditions. | Crisis: dramatic departure from prior practice and sudden threats to high priority goals with little or no response time. | Dynamic equilibrium: organizations in change mode often attributable to competition, technology, internal initiatives, or institutional evolution. Stability within a range of shifting priorities with programmatic change efforts. | Edge of chaos: transition zone delicately poised between order and chaos that many complex adaptive systems seem to naturally evolve toward. |
| Hierarchical level and expected conditions | Deep within the organization—highly predictable in degree, velocity, direction, and cyclicality | Middle of the organization—probabilities of change somewhat unknown; effects semipredictable in dramatic cycles | Top of the organization—probabilities estimated; dramatic disruptive and discontinuous change | Entire system—stable within a range of shifting priorities with programmatic efforts toward change |
| Organizational performance | Performance dimensions outside the leadership model | Performance dimensions stem from the crisis and are interpreted by leaders | Performance dimensions stem from strategy | Future performance has danger and prospect but definition of success is shifting in important dimensions and emanating from outside |
| Leader's attention patterning: consistent individual/collective process whereby corporate elite leadership identifies what is important and relevant in moving toward desired ends. | No need to focus; static and indicating to subordinates what is important | Identify crisis roots; analytics for solutions; narrowing focus on crisis solutions | Top management schema; isolate and communicate relevant information | Focus attention on priorities for change in the system; areas for change and stability |
| Leader's networking: direct and indirect network influence patterns of managers involving simultaneous choice of network, network membership and linkage, and inside activities and their management. | Leader's individual network development | Build linkages to access new resources for new solutions, build social capital | Breadth and depth of corporate elite's direct ties related to strategic information | Diversification of schema, networks, and links to key constituencies |
| Leadership research approach and key issues | Individual, comparative statics and longitudinal. Importance of the informational aspects of leadership in interactive combination with context | Individual and collective, dynamic and processual elements; combinations of collective leadership and process that yield improvement across time | Collective, comparative statics and dynamics, processual; composition of leadership associated with specific types of strategic performance | Collective, dynamic, processual; role of informational aspects of leadership in combination with transformational leadership to yield sustainability of the system |

Understanding the importance of leadership skill, O'Connell (2014) argued that it is key for all individuals within the organisation to acquire this capacity and not only those individuals in designated leader positions. O'Connell (2014) further stated that "learning to lead involves an intricate and expansive set of knowledge, skills, and dispositions" (p. 183). Uhl-Bien and Arena (2018) further argued that research in the leadership field is urgently required, specifically on

how to develop people's abilities which are required, in order to lead in organisations that are adaptive. For organisations to be adaptive, Complexity Leadership Theory (CLT) was proposed as an alternative leadership paradigm (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006).

## 2.3 Complexity Leadership Theory

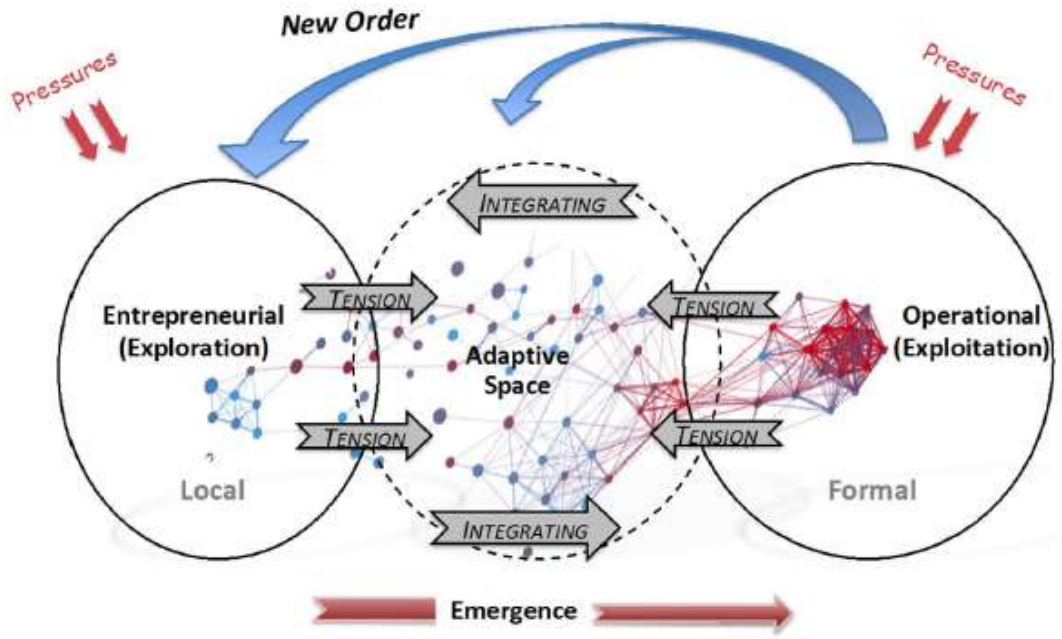
Literary scholars have proposed that leadership in today's dynamic and complex operating environment, needs to be looked at with different lenses (Uhl-Bien & Arena, 2017; Kutz & Bamford-Wade, 2013; Osborne & Hinson, 2011; Uhl-Bien & Marion, 2009; Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006; Osborn *et al.*, 2002). The authors argued that old leadership paradigms, which were grounded in the industrial era, are outdated and not suited for the knowledge economy (Uhl-Bien *et al.*, 2007). In progressing with research in leadership theory, authors drew from complexity science, to gain greater insight and to answer questions relating to leadership in today's times (Uhl-Bien & Arena, 2017; Lichtenstein *et al.*, 2006), resulting in an alternative leadership paradigm being proposed, namely, Complexity Leadership Theory (CLT) (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006).

CLT "is about leadership in and of complex adaptive systems, or CAS" (Uhl-Bien & Marion, 2009, p. 631), whereby CAS being the "basic unit of analysis in complexity science" (Uhl-Bien *et al.*, 2007, p. 299). As described by Uhl-Bien *et al.* (2007):

> "CAS are neural-like networks of interacting, interdependent agents who are bonded in a cooperative dynamic by common goal, outlook, need, etc. They are changeable structures with multiple, overlapping hierarchies, and like the individuals that comprise them, CAS are linked with one another in a dynamic, interactive network" (p. 299).

This theory is based on the notion, that for hierarchical and bureaucratic organisations to cope in this complex and dynamic environment and be able to adapt to the dynamic challenges that arise, the organisation needs to operate as a CAS. Figure 3 illustrates an organisation as a CAS. Leadership requires the ability to understand the multiple components of a CAS, as illustrated in Figure 3, and requires competencies to integrate all these components, in order to harness the positive benefits of a CAS.

**Figure 3: Organisation as a Complex Adaptive System**




**Source:** (Uhl-Bien & Arena, 2018, p. 98)

### 2.3.1 Background to Complexity Leadership Theory

According to Uhl-Bien *et al.* (2007), hierarchical leadership paradigms were most prevalent over the past century and were useful in an era revolving around manual production. This was supported by Tetenbaum and Laurence (2011), who further stated that for the past two centuries, a Newtonian paradigm, which was characterised by a context of certainty, was embedded in our society. The authors alluded to the fact that being in control was of paramount importance to humans, and as such, organisations in the industrial era were configured and functioned as hierarchical structures, whereby decisions were made at the top and filtered downward throughout the organisation (Tetenbaum & Laurence, 2011). Operating in this paradigm, managers were expected to maintain equilibrium, as changes were few and far between and required little organisational adaptability, due to life moving along slowly (Tetenbaum & Laurence, 2011).

Drucker (1998) stated that the norms regarding past management practices are almost five decades old and are very much outdated. This was supported by Kutz and Bamford-Wade (2013), who argued that today's operating environment is continuously evolving, increasing in complexity, and as such, pervious leadership models are being challenged. Although

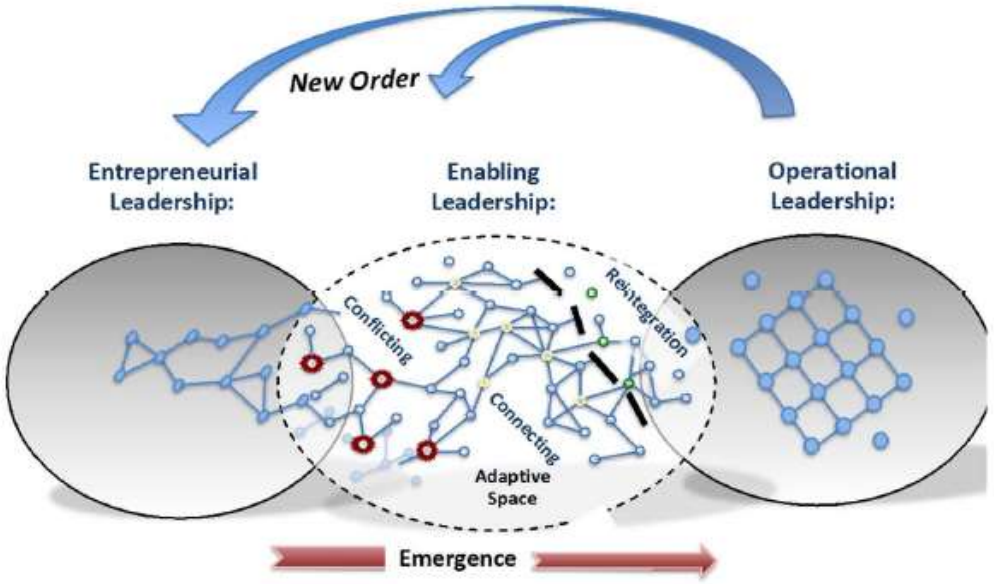
organisational leaders operate in the knowledge economy, Uhl-Bien *et al.* (2007) argued that the administration systems of organisations are still embedded in the industrial era. According to Kutz and Bamford-Wade (2013), to understand leadership in today's environment, academics and researchers have presented non-Newtonian leadership paradigms, for example complexity theory, which has been described by Uhl-Bien *et al.* (2007) to offer different leadership views, considering the shift from old leadership models to that of leadership models required for the knowledge economy.

Kutz and Bamford-Wade (2013) further argued that the current leadership setting is underpinned by uncertainty and complexity, and Uhl-Bien *et al.* (2007) proposed that leaders in organisations should change their mindset from seeing leadership from an individual perspective, to a more collaborative perspective, whereby organisations are viewed as Complex Adaptive Systems (CAS), fostering the continual emergence of creativity and knowledge, needed to cope with the dynamic challenges ahead. This led the authors to drawing on complexity science to propose an alternative paradigm, namely, Complexity Leadership Theory (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006). Gaining an understanding of complexity theory, "allows us to consider how principles of organizing emanating from the physical and biological sciences can inform our understanding of adaptability in organizational contexts" (Uhl-Bien & Arena, 2017, p. 9).

### 2.3.2 Core Concepts of Complexity Leadership Theory

To understand the proposed Complexity Leadership Theory (CLT) framework, it is important to note the components that make up this leadership framework, and how these components function together. CLT is described by Uhl-Bien *et al.* (2007) as a framework for leadership, which "focuses on identifying and exploring the strategies and behaviours that foster organizational and subunit creativity, learning, and adaptability when appropriate CAS dynamics are enabled within contexts of hierarchical coordination (i.e., bureaucracy)" (p. 299). To create a conducive environment for a CAS, one that fosters the creation and emergence of adaptive responses and still enables and maintains the formal functioning of the organisation to deliver on the organisational strategies, the authors described three entwined roles of leadership, which are actively required for the Complexity Leadership Theory framework (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). These leadership roles include: operational/administrative leadership; adaptive/entrepreneurial leadership; and enabling leadership (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). Figure 4 illustrates these leadership roles.

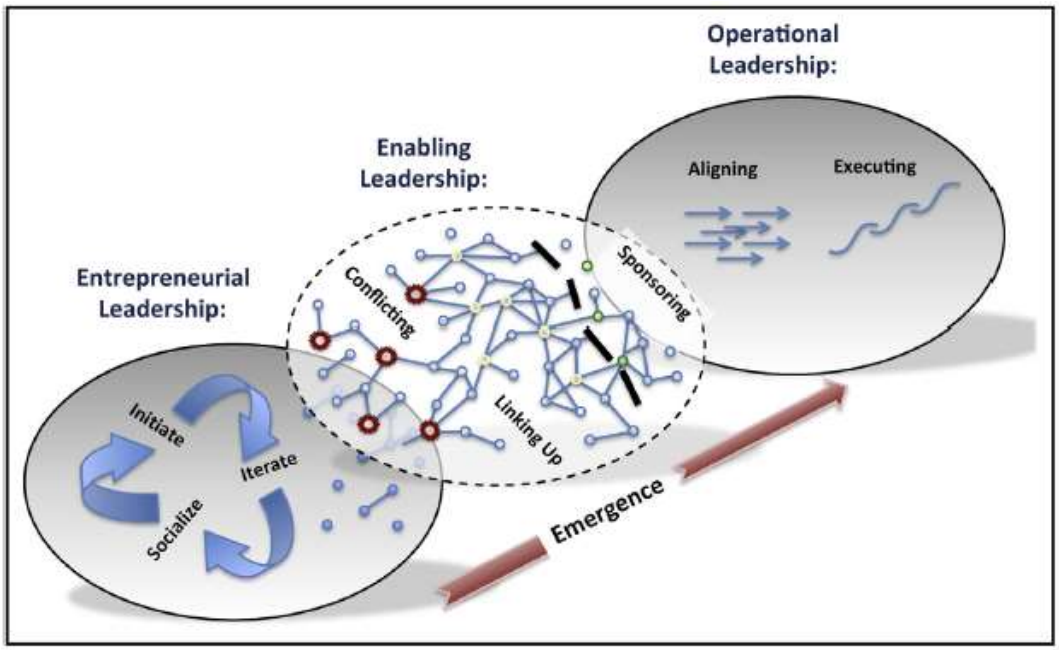
**Figure 4: The Complexity Leadership Framework of Leadership for Organisational Adaptability**




**Source:** (Uhl-Bien & Arena, 2018, p. 99)

The operational/administrative leadership of the organisation deals with the bureaucratic, hierarchical and administrative systems of the organisation, entrenched with power, structure, order, increasing efficiencies, aligning and executing to produce results for the organisation (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). On the other hand, adaptive/entrepreneurial leadership encompasses the creative, innovative, emergent and adaptive system of the organisation, whose role is to continually adapt to meet the requirements of the dynamic challenges the organisation faces (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). Enabling leadership is paramount to fostering a CAS, in two ways: (1) by enabling a conducive environment to instigate adaptive leadership, whereby adaptive responses to challenges emerge through conflicting and linking-up and are absorbed into the operational/administrative system through sponsorship; and (2) handling the interface between the operational/administrative and adaptive/entrepreneurial leadership sides (Uhl-Bien *et al.*, 2007). Figure 5 illustrates these leadership behaviours.

**Figure 5: Complexity Leadership Behaviours**




**Source:** (Uhl-Bien & Arena, 2017, p. 15)

To produce these adaptive responses, three important elements are required, namely: (1) interaction, whereby enabling leaders create network linkages allowing for information flows; (2) interdependency, required between agents, causing pressure to surface that ultimately leads to action being taken on the information received; and (3) tension, required to create the impetus to act (Uhl-Bien *et al.*, 2007). Given the above explanation that supports CLT, authors alluded to leadership competencies that are required to foster and operate within a CAS environment (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). Considering the literary discussion above, exposed the need for further research, as noted in the research purpose of the study.

## 2.4 Introduction to Competencies

### 2.4.1 Definition

Boyatzis (2008) defined a competency as one's ability or capability and stated that competency encompasses behaviours organised around intent. A competence was assumed to include: knowledge; skills; behaviours; and attributes. According to the Oxford dictionary (2006), the four criteria are defined as follows: knowledge as "information and skills acquired

through experience or education" (p. 789); skill as "the ability to do something well" (p. 1351); behaviour as "the way in which someone behaves" (p. 122); and attribute to "regard something as belonging to or being caused by" (p. 85). Competencies are required by individuals within any organisation to carry out their duties. According to Le Deist and Winterton (2005), due to the multitude of ways in which competence has been used by differing authors, it is near impossible to clearly define the term competence into a single definition, which would encompass the various meanings of competence used.

### 2.4.2 Competency Models

Arguments against the practicality of using competency models, criticised their effectiveness, and the use of these leadership competencies overlooked certain aspects, whilst it strengthened the notion that leadership is instilled in the individual, as opposed to considering leadership as a shared collaborative process (Bolden & Gosling, 2006; Hollenbeck, McCall & Silzer, 2006).

Hollenbeck and McCall (Hollenbeck *et al.*, 2006) argued against the usefulness of competency models, stating that shortcomings were prevalent by accepting and using these models without critically analysing them first. However, Silzer (Hollenbeck *et al.*, 2006) in the same article, countered these arguments and concluded that the use of competency models was beneficial to organisations and individuals in numerous ways, including the enhancement and skill development of leadership.

### 2.4.3 Importance of Competencies

According to Bolden and Gosling (2006), the drive towards research in competencies started at the end of the 1960's, followed by McClelland's (1973) work which criticised the validity of how intelligence tests were carried out by academic institutions and employers at the time, and proposed alternative test methods, highlighting the testing of competence instead. Bolden and Gosling (2006) argued that although the use of competencies had grown in organisations, there had been an exchange of views regarding their effectiveness in contributing to better performance.

Sparrow (1995) argued that the context in which human resource practices have played out in the past has changed, due to: work environments becoming more flexible; demands placed on the organisation to perform in this competitive environment; and organisational structure changes, to name a few. Nordhaug and Gronhaug (1994) argued that one cannot disregard

the importance of an individual's competency, as they contribute to the organisations competitiveness.

According to Klein *et al.* (1991), competencies can never be static and are continuously changing, due to the nature of the changing context. The authors further emphasized, that an organisation's portfolio of skills needs to be continuously managed, and argued that organisations who are successful, develop sets of competencies which assist in exploiting innovative opportunities (Klein *et al.,* 1991). Nordhaug and Gronhaug (1994) stated that not many human resources fully understand the degree of their own competencies but may understand it further, if they are presented with a list of key applicable competencies to be assessed. The authors further stated that when competencies are nurtured, it becomes more advantageous to the organisation (Nordhaug & Gronhaug, 1994).

## 2.5 Leadership Competencies

Leadership does not occur in isolation and is rooted in context (Osborn *et al*., 2002). Businesses are unique and leadership competencies required in each specific business, cannot be viewed in isolation and need to be aligned to that specific business and its operating environment, considering the distinct challenges the business is facing and its strategy (Boyatzis, 2008; Hernez-Broome & Hughes, 2004).

According to Boyatzis (2008), research published over the past three decades found that exceptional leaders, professionals, managers and other key personnel, were perceived to need the following groups of competencies, namely: expertise and experience; knowledge; and basic cognitive competencies.

Other authors contend that the following competencies were needed for exceptional performance, namely: higher level of cognitive competencies; social intelligence competencies; and emotional intelligence competencies (Bray *et al.*, 1974; Boyatzis, 1982; Kotter, 1982; Luthans et. al., 1988; Howard and Bray, 1988; Campbell *et al.*, 1970; Spencer and Spencer, 1993; Goleman, 1998; Goleman *et al.*, 2002, as cited in Boyatzis, 2008, p. 7).

## 2.6 Competencies of Complexity Leadership required to thrive in a Complex Adaptive System

According to Avolio *et al.* (2009), leadership research today transcends the individual leader to include an array of criteria, such as: other work colleagues; culture; and context, to name a few. This view is supported by Clarke (2013), who argued that given the complex operating environments that organisations face, the focal point on leadership research should extend past the relationships between individuals, to include a wider range of organisational criteria that enables organisations to be innovative and adaptable. Authors in the complexity leadership field, alluded to a multitude of leadership competencies which are critical to fostering a CAS and leading in this complex environment (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Kutz & Bamford-Wade, 2013; Osborne & Hinson, 2011; Kutz, 2008; Uhl-Bien *et al.*, 2007; Bennet & Bennet, 2003). The following section discusses the various types of competencies required, as per the specific authors contribution to the field of complexity leadership.

### 2.6.1 Competencies required for Administrative, Entrepreneurial and Enabling Leadership roles

Authors specifically alluded to competencies that were centred around the three leadership types within a CAS environment, namely: operational/administrative leadership; adaptive/entrepreneurial leadership; and enabling leadership (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). From an administrative leadership perspective, the authors argued that competencies associated with the internal functioning of the organisation relating to efficiencies and exploitation, included: being able to build a vision; being able to plan; and being able to coordinate (Uhl-Bien *et al.*, 2007). Uhl-Bien and Arena (2017) supported this view, stating that irrespective of the complexity, organisational leaders must still be cognisant of the operational side of the organisation, and appreciate its role in creating and driving internal efficiencies, which would translate into increased organisational performance.

However, the authors argued that administrative leaders should extend their classical view of the operational side and understand that to enhance the sustainability of the organisation, the organisation needs to innovate and be adaptable to the changing environment, and they need to be filters, and protect and facilitate the efforts made by the entrepreneurial and enabling leadership perspectives (Uhl-Bien & Arena, 2017). It was further argued, that tension between

the operational and entrepreneurial sides of the organisation is a key ingredient and acts as a catalyst for innovation to occur, which needs to be fostered (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). To enable the acceptance of the ideas into the administrative side of the organisation, it was argued by the authors, that administrative leaders need to act as bridges and sponsor, align and execute to achieve this objective (Uhl-Bien & Arena, 2017).

From an entrepreneurial leadership perspective, the authors argued that collaboration between the agents, that being the people and groups, is required to generate the adaptive responses through conflicting with each other, over differing ideas and needs, and linking up to form a consensus of the best solution possible (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). Networking is essential to enabling entrepreneurial leadership (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). In order to produce new products, services and different ways to work, the status quo needs to be challenged (Uhl-Bien & Arena, 2017). Some organisations may not be organised to accommodate or support the entrepreneurial side of the business, and as such, the entrepreneurial leader needs to use brokerage between groups, to unlock the opportunities to test novel ideas (Uhl-Bien & Arena, 2017). Entrepreneurial leaders face many challenges internally within the organisation, especially with the operational side of the business, and as such, these leaders need to be resilient in their efforts (Uhl-Bien & Arena, 2017). The entrepreneurial leaders know that patience, persistence and tenacity are key and are aware of the current context and acutely aware of timing, and when to pitch their ideas to the organisation (Uhl-Bien & Arena, 2017). These entrepreneurial leaders are not fixated with their ideas and are flexible, acknowledging that their ideas can change (Uhl-Bien & Arena, 2017).

Taking the complexity into account, the authors increased the lexicon for leadership, by proposing the term “enabling leadership”, which instils a different view of leadership (Uhl-Bien & Arena, 2017). Enabling leadership’s role, in essence, is to connect the administrative side and entrepreneurial side of the organisation, in such a way, that fosters the adaptive space, in which creation and innovation occurs to address the dynamic challenges the organisation faces (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007). By applying complexity thinking, the enabling leader can initiate and promote activity between networks, which enables adaptive responses to occur (Uhl-Bien & Arena, 2017). Whilst the enabling leader needs to be able to adapt personally to his or her surrounding environment, and be a change agent, initiating change within the organisation, they still require a strong sense of humanity (Uhl-Bien & Arena, 2017).

However, in performing their role, these enabling leaders also need to be able to take risks, when nurturing the conducive operating environment for the emergence of ideas (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017). In their dealings, the authors stress that these enabling leaders need to be accustomed to working in an environment where tension occurs (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017), and they need to be strategic thinkers, prompting the emergence in this environment (Uhl-Bien & Arena, 2017). As alluded to by the authors, these enabling leaders understands that the cause transcends themselves, and it is about creating an environment for others to succeed, resulting in the emergence of ideas, giving these leaders purpose and meaning (Uhl-Bien & Arena, 2017).

### 2.6.2 Competencies required to Lead in Times of Complexity

According to Osborne and Hinson (2011), the environment in which organisations operate in, is becoming increasingly complex, because of the cascading effect of rapid technological advancement, which increases the ways in which we can connect, causing our interdependency to increase. The authors support other complexity leadership scholars, stating that a mindset change is required, in order to lead in these times of complexity, and have proposed five leadership essentials (Osborne & Hinson, 2011).

The first essential proposed, indicated that organisations could become complacent in their operations, whereby the organisation is not geared for exploration and innovation and is at risk of stagnation, and as such, a leader who understands disruption, understands that the emergence of innovation takes place at the edge of chaos, and therefore must create disruption (Osborne & Hinson, 2011). The second essential proposed, indicated that in order to get information to flow internally and externally to the organisation, for the purposes of idea generation and co-creation between the different parts, a leader must connect the fragmented and disconnected parts of the organisation (Osborne & Hinson, 2011). The third essential proposed, indicated that a leader should relinquish control and encourage a diversity of people to meet and discuss issues, that are of common importance between them, in order to instigate change (Osborne & Hinson, 2011). The fourth essential proposed, indicated that in order to be proactive in identifying opportunities, leaders need to be strategically intelligent (Osborne & Hinson, 2011). This includes: being aware of their surroundings; being aware of developments that are emerging externally to the organisation; having a peripheral vision and understanding of their organisation; enabling information flows to occur internally in the organisation; opening up the idea generation to everyone within the organisation; and developing a conducive environment for employees to challenge the status quo (Osborne & Hinson, 2011). The last essential proposed, indicated that in amongst the complexity, leaders

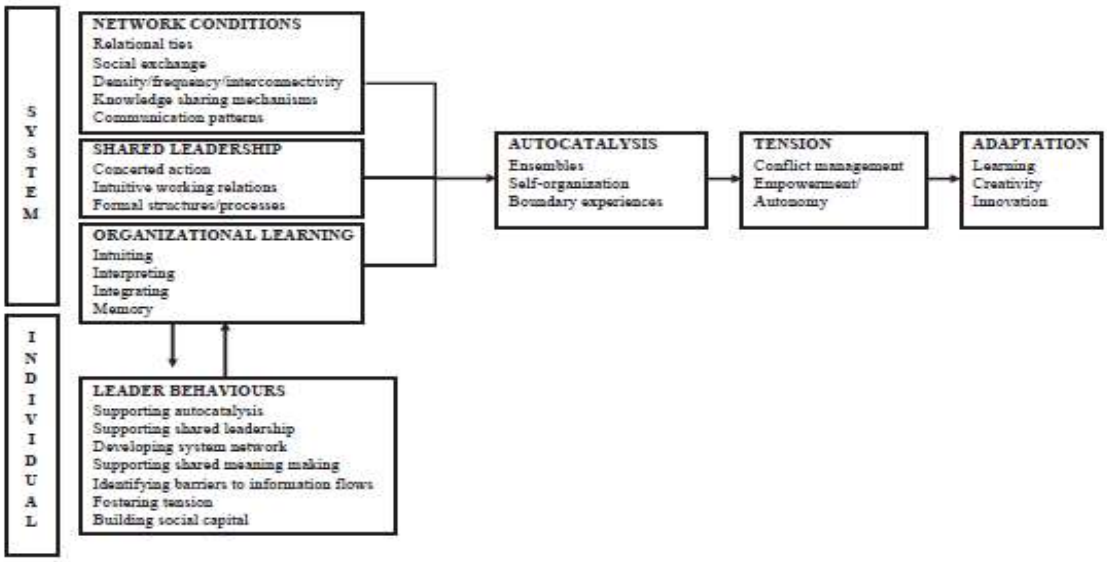
need to bring a sense of calm to the organisation, instilling confidence (Osborne & Hinson, 2011).

### 2.6.3 Competencies for Complexity Leadership Development

Clarke (2013) proposed a conceptual leadership development model, describing the model to encompass analysis from a systems level and from an individual level, described in Figure 6. The author argued that at a systems level, three areas are needed for complexity leadership development, namely: network conditions, which are required to enhance the adaptability of the organisation in response to the complex challenges; shared leadership, required to exploit the collective intelligence of the organisation; and organisational learning, required to co-create knowledge within a CAS environment (Clarke, 2013).

However, at the individual level, the author argued that leaders need to gain skills and knowledge, in order to help support the leadership behaviours, described in Figure 6 (Clarke, 2013). The leadership behaviours proposed by the author included the following: (1) “Supporting autocatalysis”, which is the ability of leaders to create a conducive environment and empower their teams with the necessary abilities, in order for them to interact with each other, resulting in positive outcomes; (2) “Supporting shared leadership”, whereby leaders relinquish their control mindset and perform more coordinating activities to enhance the interaction between the members of their teams; (3) “Developing the system’s network”, whereby a leader creates and nurtures networks; (4) “Supporting shared meaning-making”, whereby leaders create a purpose driven vision, in order to guide their teams in their endeavours when working towards solving problems; (5) “Identifying barriers to information flows”, whereby leaders continuously scan their environment to identify blockages that impact the flow of information, and remove these blockages; (6) “Fostering the positive value of tension”, whereby leaders create a conducive environment for their teams to operate, thus enhancing participation between members, and embracing the differing views of its members; and (7) “Building social capital”, whereby the leader’s aim is to promote inclusion and strengthen the bonds amongst its members (Clarke, 2013, p. 141-142).

**Figure 6: Conceptual model of Complexity Leadership development**




**Source:** (Clarke, 2013, p. 139)

### 2.6.4 Competency for Contextual Intelligence

Kutz and Bamford-Wade (2013) argued that given the complex and uncertain environment that leaders operate in today, a key competency for leaders to possess is contextual intelligence. Kutz (2008) described the construct to encompass the following: one must understand past events; one must be cognisant of the current context and variables; and one must understand the desired future state. In addition to these three criteria mentioned above, the author proposed 12 leadership competencies associated with contextual intelligence, described in Table 2 (Kutz, 2008).

The list of behaviours and skills associated with contextual intelligence encompassed the following: (1) “Future-Minded”, whereby organisational leaders need to look and plan ahead for the organisation; (2) “Influencer”, whereby the leader is able to positively impact a person’s decisions without force; (3) “Ensures an awareness of mission”, whereby the leader is able to instil a sense of awareness of how an individual can impact the overall organisation; (4) “Socially responsible”, whereby the leader is socially in tune and is a willing volunteer in group activities; (5) “Cultural sensitivity”, whereby the leader embraces diversity within the organisation; (6) “Multicultural leadership”, whereby the leader is able to lead within a context that is diverse; (7) “Diagnoses context”, whereby the leader is able to read the environment and act accordingly; (8) “Change agent”, whereby the leader is not afraid to challenge the

status quo, in order to bring about change; (9) “Effective and constructive use of influence”, whereby the leader is able to use their powers in a positive way, to deal with and direct people; (10) “Intentional leadership”, whereby the leader is able to look introspectively and improve on their personal performance; (11) “Critical thinker”, whereby the leader is not cognitively caged and is able to use their cognitive abilities to connect the dots; and (12) “Consensus builder”, whereby the leader is able to align people to the mission of the organisation, using multiple skills to achieve this (Kutz, 2008).

**Table 2: List of behaviours, skills, and brief descriptors associated with contextual intelligence (Kutz, 2008, p. 26-27)**

1. **Future-minded**
   Has a forward-looking mentality and sense of direction and concern for where the organization should be in the future.
2. **Influencer**
   Uses interpersonal skills to ethically and non-coercively affect the actions and decisions of others.
3. **Ensures an awareness of mission**
   Understands and communicates how the individual performance of others influences subordinate's, peer's, and supervisor's perception of how the mission is being accomplished.
4. **Socially responsible**
   Expresses concern about social trends and issues (encourages legislation and policy when appropriate) and volunteers in social and community activities.

5. **Cultural sensitivity**
   Promotes diversity in multiple contexts and aligns diverse individuals by creating and facilitating diversity and provides opportunities for diverse members to interact in non-discriminatory manner.
6. **Multicultural Leadership**
   Can influence and affect the behaviors and attitudes of peers and subordinates in an ethnically diverse context.
7. **Diagnoses Context**
   Knows how to appropriately interpret and react to changing and volatile surroundings.
8. **Change agent**
   Has the courage to raise difficult and challenging questions that others may perceive as a threat to the status quo. Proactive rather than reactive in rising to challenges, leading, participating in, or making change (i.e., assessing, initiating, researching, planning, constructing, and advocating).
9. **Effective and constructive use of influence**
   Uses interpersonal skills, personal power, and influence to constructively and effectively, affect the behavior and decisions of others. Demonstrates the effective use of different types of power in developing a powerful image.
10. **Intentional leadership**
    Assesses and evaluates own leadership performance and is aware of strengths and weaknesses. Takes intentional action toward continuous improvement of leadership ability. Has an action guide and delineated goals for achieving personal best.
11. **Critical thinker**
    Cognitive ability to make connections, integrate, and make practical application of different actions, opinions, and information.
12. **Consensus builder**
    Exhibits interpersonal skill and convinces other people to see the common good or a different point of view for the sake of the organizational mission or values by using listening skills, managing conflict, and creating win-win situations.

**Source:** (Kutz, 2008, p. 26-27)

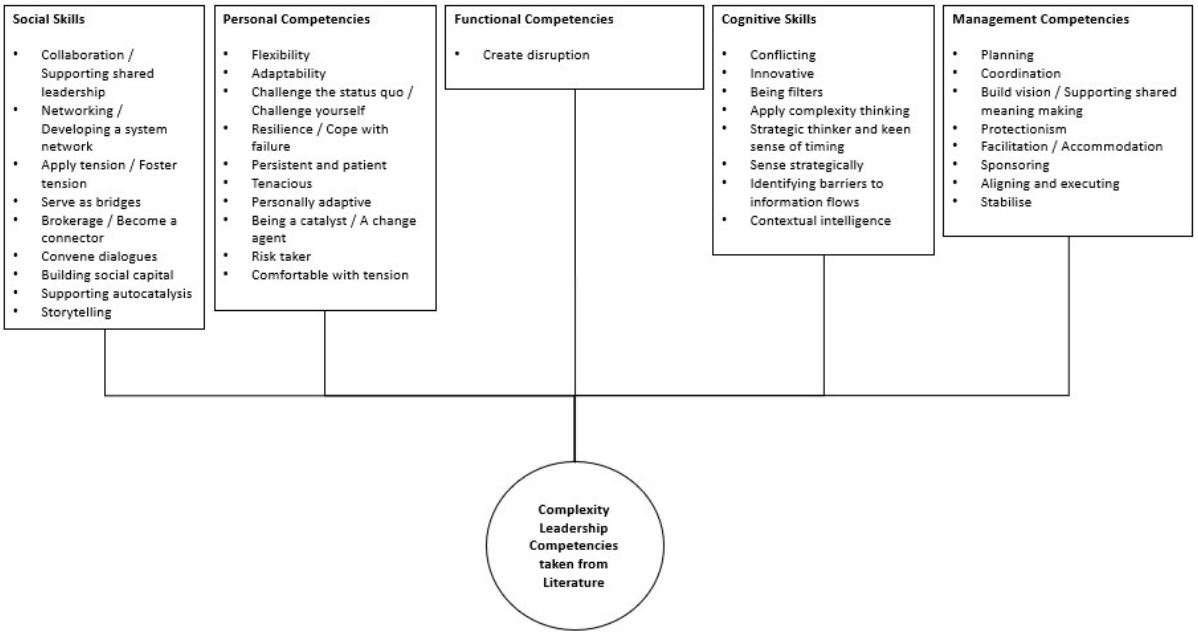
### 2.6.5 Competency of Storytelling

Boal and Schultz (2007) acknowledged that organisations are becoming characterised as a CAS, and through the use of storytelling and dialogue, strategic leaders are able to influence the interactions between its agents, integrating the organisations past, present and future. The authors argued that it is the responsibility of the organisation's strategic leaders to lead the organisation to the edge of chaos and help facilitate the process to innovate and adapt (Boal & Schultz, 2007).

## 2.7 Conclusion

The literature review above, described that a leader's world is changing at a rapid pace, and in order for leaders to cope in today's complex and dynamic operating environment, authors proposed that leadership should be viewed through the lens of complexity science, and proposed the Complexity Leadership Theory as a framework (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006). The different authors in the complexity leadership field, alluded to a multitude of leadership competencies which are critical to fostering a CAS and leading in this complex environment (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Kutz & Bamford-Wade, 2013; Osborne & Hinson, 2011; Kutz, 2008; Uhl-Bien *et al.*, 2007; Bennet & Bennet, 2003). Figure 7 has been created to illustrate the competencies discussed above, as per the different authors.

**Figure 7: Complexity Leadership Competencies taken from Literature**



**Source:** Synthesised from (Uhl-Bien & Arena, 2018, p. 98-100; Uhl-Bien & Arena, 2017, p. 9-20; Clarke, 2013, p. 139; Osborne & Hinson, 2011, p. 28-29; Kutz, 2008, p. 26-27; Uhl-Bien *et al.,* 2007, p. 298-318; Boal & Schultz, 2007)

However, as argued by Boyatzis (2008), Hernez-Broome and Hughes (2004), competencies cannot be the same across all organisations and should be aligned to the context in which the business operates. In addition, scant information could be found, to indicate whether these leadership competencies alluded to in literature, were exhaustive.

Uhl-Bien and Arena (2018) argued that research in the leadership field is urgently required, specifically on how to develop people's abilities which are required, in order to lead in organisations that are adaptive. Avolio *et al.* (2009) stated that research in the field of complexity leadership falls short of being substantial and suggests that further research in this field is required. This view was supported by Uhl-Bien and Arena (2018), who acknowledged that there is scant information in this area. And as argued by Clarke (2013), further research is required to understand the competencies leaders need to possess, in order to enable their organisations to effectively operate as a CAS.

Furthermore, as stated by Klein *et al.* (1991), competencies can never be static and are continuously changing, due to the nature of the changing context. Nordhaug and Gronhaug (1994) argued that one cannot disregard the importance of an individual's competency, as they contribute to the organisations competitiveness, and alluded to the fact that when competencies are nurtured it becomes more advantageous to the organisation. However, Nordhaug and Gronhaug (1994) further stated that not many human resources fully understand the degree of their own competencies but may understand it further, if they are presented with a list of key applicable competencies to be assessed. Therefore, it would be important to understand which competency the executive leaders at the MNOs acknowledge to be the most important competency, as well as to understand future competencies they would need to develop going forward.

Given the above context, the study sought to understand what critical competencies are required by executive ICT leaders at Mobile Network Operators, to lead in their Complex Adaptive System. In addition to the identified critical competencies that are required to succeed in a CAS, the study aimed at understanding which competency was the most important to executive ICT leaders operating in their CAS, and if any additional competencies were required in the future to operate in their CAS, which were not covered within the literature reviewed.

# CHAPTER 3: RESEARCH QUESTIONS

## 3.1 Introduction

The purpose of this study is to answer three research questions, which were formulated based on gaps identified in the reviewed literature.

## 3.2 Research Questions

**Research Question 1: What are the critical competencies required by executive ICT leaders to succeed in their CAS?**

Research question 1 aims to identify and evaluate what are perceived to be the critical competencies required by executive ICT leaders to succeed in their CAS. This seeks to identify and evaluate what critical competencies executive ICT leaders at Mobile Network Operators say are important. This research question further aims to identify any competency (or competencies) used by these executive leaders, that is not covered within the reviewed literature (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Kutz & Bamford-Wade, 2013; Osborne & Hinson, 2011; Uhl-Bien *et al.*, 2007; Kutz, 2008; Bennet & Bennet, 2003).

**Research Question 2: Of the identified critical competencies, which competency is perceived to be the most important?**

Research question 2 aims to identify and evaluate which competency is the most important to executive ICT leaders operating in their CAS. Leaders play a vital role in enabling and fostering a CAS environment, and of the competencies described by the authors in the literature reviewed (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Kutz & Bamford-Wade, 2013; Osborne & Hinson, 2011; Uhl-Bien *et al.*, 2007; Kutz, 2008; Bennet & Bennet, 2003) scant information was found alluding to which competency is the most important to operate in this environment. Therefore, this research question aims to identify and evaluate which competency is perceived to be the most important to the executive leaders at Mobile Network Operators.

**Research Question 3: Establish what additional competencies would executive ICT leaders need to develop in the next five years?**

Research question 3 aims to identify and evaluate what are perceived to be the competencies executive ICT leaders would need to develop in the next five years. The authors argued that leadership competencies will transform as the business's operating landscape changes (Hernez-Broome & Hughes, 2004; Klein *et al.,* 1991). Therefore, this research question aims to identify and evaluate any competency or competencies which are perceived to be required by executive ICT leaders to operate in their CAS, within the next five years.

# CHAPTER 4: RESEARCH METHODOLOGY AND DESIGN

## 4.1 Introduction

This chapter discusses the research methodology and design that was used to conduct the study. This study identified and evaluated the critical competencies required by executive ICT leaders at the Mobile Network Operators, to lead in their CAS. The literature reviewed and presented in Chapter 2, formed the foundation of the purpose and research questions, which determined the research design, which in turn determined the methodology for this study (Bailey, 2018). To gain insights into this specific topic and what is happening in the field, and to answer the research questions, necessitated the use of open-ended questions with the interviewees (Saunders, Lewis & Thornhill, 2012). Noting the nature of the study, a qualitative and exploratory research approach was adopted, and the data was collected through semi-structured, in-depth, face-to-face interviews.

This chapter describes the following: research methodology and design; population; unit of analysis; sampling method and size; measurement instrument; validity and reliability; data gathering process; analysis approach; and research limitations.

In terms of the context for the study, a critical component of the ICT industry is the Mobile Network Operators (MNOs). Since their entry into the South African market, they have revolutionised the economy in several ways. At a basic level, the MNOs provided a solution to connect the unconnected, creating social inclusion, as described by Grzybowski (2015), mobile phones are the only form of remote communications available to people living in the rural areas, where fixed-line telecommunications have not been deployed. A plethora of studies has been conducted around the uses of mobile technologies in industries, such as: healthcare; education; banking; and financial services, to name a few. Although the MNOs are large hierarchical organisations in South Africa, they are not immune to the challenges brought on by the increasing complex and dynamic operating environment. As such, for these hierarchal and bureaucratic organisations to cope with the increasingly complex and dynamic landscape, the authors proposed that these organisations enable and foster a CAS environment (Uhl-Bien *et al.*, 2007). Sammut-Bonnici (2015) alludes that MNOs operate a mixed business model, consisting of a hierarchical system and a CAS which co-exist, as there are interrelationships between numerous agents within this ecosystem, consisting of “regulators, network providers, technology suppliers, and consumers” (p. 1).

## 4.2 Research Methodology and Design

The purpose of this study was to compare what competencies literature stated were required for a Complex Adaptive System, as opposed to what the executive ICT leaders at Mobile Network Operators' stated their competencies were. Based on the arguments made by the authors in Chapter 2 (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Clarke, 2013; Avolio *et al.,* 2009; Boyatzis, 2008; Hernez-Broome & Hughes, 2004) which called for further research to be conducted in the field of complexity leadership, and the specific purpose of the study, a qualitative approach was chosen for the study, necessitating research questions to be used for the study, as the topic was under-researched.

An interpretivism philosophy was chosen for the study. Considering that this study was exploratory in nature, and in-depth information rich data was required to answer the specified research questions in Chapter 3, based on the executive ICT leaders' perceptions, an inductive approach was chosen for the study. From a research choice perspective, a single qualitative data collection technique was chosen, namely, in-depth interviews, which included the corresponding data analysis procedure (Saunders, Lewis & Thornhill, 2009) i.e. a mono method.

From a time-horizon perspective, due to the time constraints associated with this study, a cross-sectional study was conducted. Saunders *et al.* (2009) describes a cross-sectional study, as a study taken at a specific point in time. Primary data was collected using semi-structured, in-depth, face-to-face interviews with the interviewees.

## 4.3 Population

Saunders *et al.* (2009) defines a population to include the whole group of members. As Litt (2012) explained, the population encompasses all entities of interest, that a researcher wishes to understand. Defining the population of interest within the research design is important, as this prescribes the scope of inferences obtained from the research (Litt, 2012). For the purposes of this specific study, the population that was identified comprised of executive ICT leaders at Mobile Network Operators in South Africa. As stated, South Africa has four major Mobile Network Operators in operation, and for the purposes of this study, the details of these Mobile Network Operators have been anonymised, and these organisations will be referred to as MNO A, MNO B, MNO C and MNO D. However, no response was received from MNO B requesting participation in this study. Telephonic and email requests were made to selected

individuals, which included the Chief Technology Officer and Executive Head of IT Operations, however, no response was received.

The population for this study included: Chief Information Officers; Chief Technology Officers; Managing Executives; Heads of Departments; General Managers; and Executives, from across three of the major Mobile Network Operators in South Africa. Based on prior research conducted on each interviewee, it was established that they held executive leadership positions, with decision making capabilities, and were perceived to have the required experience, life learnings, knowledge and insights to contribute to the study. The rationale for this selection, was due to the research questions and research design considerations (Schensul, 2012). The selected population aligned with the research problem, purpose statement and literature review. All the interviewees that participated in this study were based in Johannesburg.

## 4.4 Unit of analysis

Vogt (2011) described a unit of analysis, as being the things or persons being studied. Considering the data analysis phase, the units of analysis of this study were the perceptions and opinions of the interviewees, at an individual level.

## 4.5 Sampling Method and Size

From a sampling method perspective, non-probability (judgmental) sampling was adopted, which used both purposive and snowballing techniques for the study (Saunders *et al.,* 2012; Saunders *et al.*, 2009). According to Saunders *et al.* (2012), purposive sampling is used when the researcher selects the cases that will be most beneficial to answering their specific research questions. Based on this studies research questions, the researcher used his judgement in selecting these individuals at the three major Mobile Network Operators, who were perceived to have experience, life learnings, knowledge and insights to contribute to the study, based on prior research conducted on each interviewee. A homogeneous purposive sampling strategy was adopted, as these sample members were similar, that being executive ICT leaders who were all employed at Mobile Network Operators in South Africa, and who operate in the same context (Saunders *et al.,* 2012; Saunders *et al.*, 2009). This allowed the researcher the ability to study this particular group in more depth (Saunders *et al.,* 2012; Saunders *et al.*, 2009), taking into account the insights obtained from these sample members.

The researcher used his existing relationships and networks with the executives at the three Mobile Network Operators, to gain access to these individuals. However, in a few cases, the researcher asked the initial interviewees to identify further individuals, who were able to participate and provide insights into this study (Saunders *et al.,* 2012). As such, the snowball sampling technique used, assisted in gaining access and insights from other executive ICT leaders at the MNOs.

Considering the sample size being small for a qualitative study, a sample size of 13 interviews for this study was conducted across the three major Mobile Network Operators in South Africa. The researcher planned to conduct a minimum of 15 interviews, however, as stated above, no response was received from MNO B requesting participation in this study. Also, due to busy schedules of the potential participants, the number of interviews was limited to 13.

Prior to these interviews being conducted, the researcher ensured that he researched and understood each individual and their respective organisation. The study site where the face-to-face engagements took place, was discussed and agreed upon with the interviewees, which ensured a conducive environment, free from distractions and noise. These interviewees included: Chief Information Officers; Chief Technology Officers; Managing Executives; Heads of Departments; General Managers; and Executives, as detailed in Table 4.

## 4.6 Measurement Instrument

The measurement instrument used for this study, was a semi-structured interview schedule (Saunders *et al.*, 2009; Saunders, Lewis & Thornhill, 2016). Guided by: the research objectives stated in Chapter 1; the literature reviewed in Chapter 2; and the research questions stated in Chapter 3, the researcher designed a predefined set of 10 questions, for the interviews with the executive ICT leaders at the Mobile Network Operators. Using a semi-structured interview, this provided the researcher the flexibility to omit some questions, if needed, in a specific interview, based on the context in relation to the research topic (Saunders *et al.*, 2009; Saunders *et al.*, 2016). On the opposite end of the continuum, it also allowed the researcher the ability to ask additional questions, if needed, to explore the research questions and objectives further (Saunders *et al.*, 2009; Saunders *et al.*, 2016). Due to the purpose of this study, the 10 interview questions were designed to be open-ended and non-leading, to explore and gain in-depth insights of interviewees perceptions, on competencies required by executive ICT leaders at Mobile Network Operators. As stated by Yin (2016), questions that are open-ended are very important, as this allows the interviewee the freedom to use their own words in the discussion. The interview schedule is attached in Appendix 3.

## 4.7 Data Collection

Majority of the time in qualitative research, face-to-face interaction is predominantly used when engaging with the study community and study participants (Schensul, 2012). This allowed the researcher the ability to probe for answers from the interviewees, as well as request further explanation, or for the interviewee to elaborate further on specific responses (Saunders *et al.*, 2016).

Engagement with the interviewees selected, were initiated telephonically and followed up with email, to request their participation in this study, which included detail on the research topic. The invitation to participate in the research study is attached in Appendix 1. After the pilot interviews were conducted, the research questions were adjusted.

Prior to the start of each interview, the following was done: (1) the researcher ensured that he researched and understood each individual and their respective organisation; (2) the study site where the face-to-face engagements took place, was discussed and agreed upon with the interviewee, to ensure a conducive environment, free of distraction and noise; (3) permission to record the interview was requested from each interviewee, and there were no objections made by any interviewee to the interview being recorded; and (4) a participant consent form was signed by both the interviewee and the researcher, stating that all information obtained from the interview, and their identity, will be kept confidential during and post the research study, and that all data obtained would be reported without identifiers. The participant consent form is attached in Appendix 2.

As noted by Schensul (2012), this data collection requires self-examination, acknowledgment of possible biases, and the handling of personal notes, that will help the researcher offset any influence on the setting, so as not to jeopardize what is observed or noted. By audio recording these interviews, this allowed the researcher the ability to use the services of a Sonix ai, which is a paid for, professional transcriber software, to transcribe the audio data into a written format, which was then used in the data analysis stage. The researcher himself and his spouse, performed the transcription services using Sonix ai. In addition to the audio recordings, field notes were recorded by hand and were entered into an electronic format directly after each interview was completed.

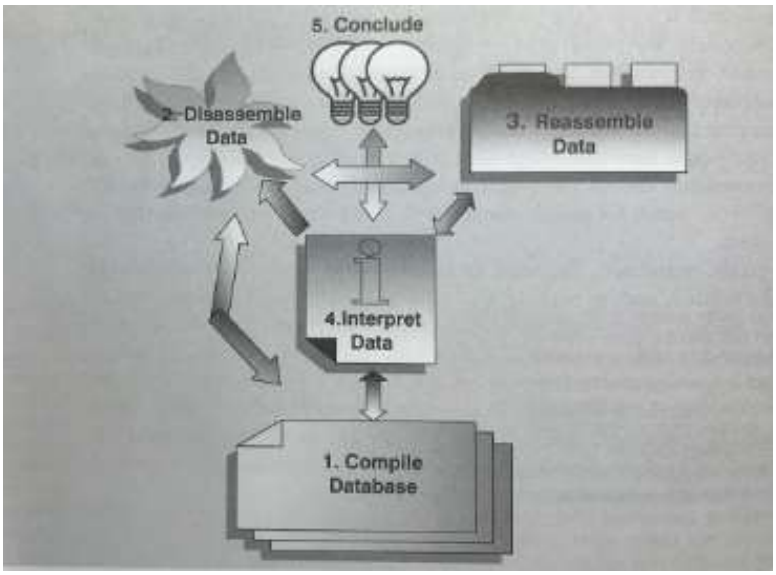
The researcher himself conducted all interviews in person with the specified interviewees, and all the interviews were conducted at the interviewee's office premises. However, due to time

limitations with one interviewee, it was agreed to perform the interview telephonically. Out of the 13 interviews conducted, the longest interview took 58 min and 58 seconds, the shortest interview took 10m and 21 seconds, whilst the average interview took 23 minutes and 42 seconds, to complete.

## 4.8 Data Analysis

According to Yin (2016), there is no set standard or exact method on how to perform qualitative data analysis, however, as alluded to by the author, qualitative data analysis generally encompasses a five-stage process, described in Figure 8.

**Figure 8: Five Phases of Analysis and Their Interactions**




**Source:** (Yin, 2016, p. 186)

This five-staged process was adopted and used for the data analysis phase of this study.

**Stage 1:** The researcher audio-recorded 13 interviews and transcribed them using a professional application called Sonix ai. Field notes that were taken by hand, during each interview were written up in Microsoft Word format after each interview. Although the researcher started the formal analysis of the data collected, during this first stage, he had already started to analyse the data informally, during the interviews that took place (Yin, 2016).

**Stage 2:** The researcher then captured the data manually, according to interview questions, into Microsoft's Excel programme. The researcher then dissected the data into pieces and assigned specific codes to these pieces of data, which aligned to each interview question. During stage two, the researcher followed an iterative approach in this stage, whereby reviewing the transcriptions, field notes and listening to the audio recordings of each interviewee several times.

**Stage 3:** The researcher then grouped specific codes under a specific subcategory, thereby clustering the data around a certain subcategory. Subcategories used were based according to Janjua, Naeem and Kayani (2012), who stated that competencies can be arranged into classes, namely: functional competencies, which relate to the skills, knowledge, and abilities that one requires in order to perform a particular function; management competencies, which relate to the knowledge, skills and behaviour one requires to perform managerial tasks; social skills, which relates to behaviours and skills that one requires in order to work well with people; cognitive skills, which relates to one's cognitive abilities and critical thinking abilities to address challenges; and personal competencies, which relate to ones traits, motives, self-image, core values, and intent.

**Stage 4:** The data which was assigned codes and grouped under a specific subcategory, was then interpreted by the researcher, in alignment with each specific interview question.

**Stage 5:** Lastly, based on the researcher's interpretation of the analysed data, he concluded the study's findings outlined in Chapter 7.

The researcher constructed and made use of frequency tables, to note the frequency of competencies mentioned across all 13 interviews which took place. It was noted that, although the data was presented in frequency tables pertaining to research question 1 and 3, this did not infer any levels of importance. However, the frequency tables used in research question 2, inferred the level of importance, as the specific interview question posed to the interviewees, requested them to rank the competencies in order of importance. From a consistency perspective, Table 3 displays which interview questions were mapped to the respective research questions.

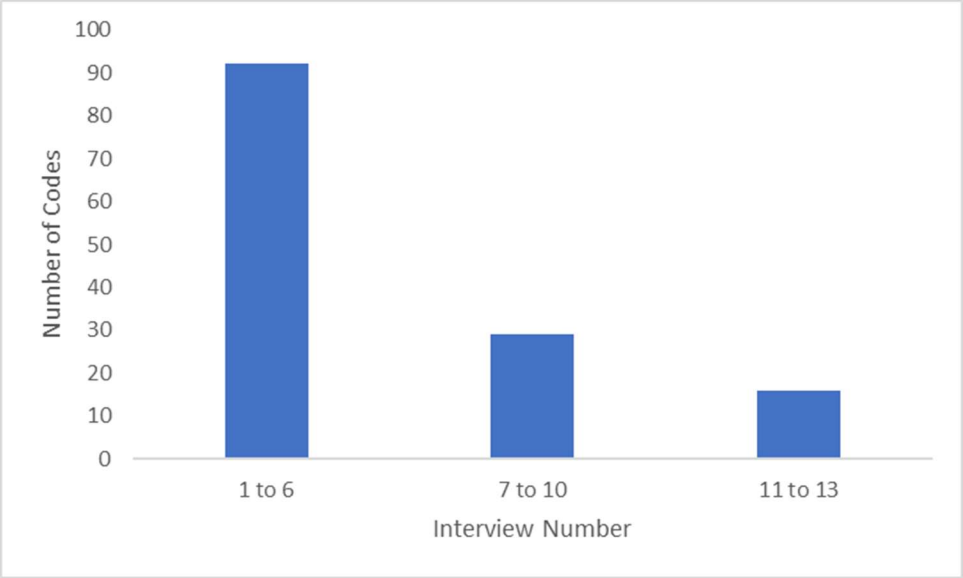
**Table 3: Consistency Matrix: Mapping of Research Questions and Interview Questions**

| Research Questions | Interview Questions |
|---|---|
| | 1. From your point of view, how would you define and describe the ICT industry?<br><br>2. How important is the ICT industry, specifically Mobile Network Operators to people, organisations and the economy in general?<br><br>3. From your experience, how important is executive leadership within the ICT industry? |
| **RQ 1**<br><br>**What are the critical competencies required by executive ICT leaders to succeed in their CAS?** | 4. What is your understanding of the concept of competencies?<br><br>5. From your experience, what competencies are required by executive ICT leaders? |
| **RQ 2**<br><br>**Of the identified critical competencies, which competency is perceived to be the most important?** | 6. How would you rank these competencies in order of importance?<br><br>7. Which competency do you consider to be the most influential to your development as a leader?<br><br>8. Why do you consider this competency to be most influential? |
| **RQ 3**<br><br>**Establish what additional competencies would executive ICT leaders need to develop in the next five years?** | 9. From your point of view, what additional competencies would executive ICT leaders need to develop in the next five years? |
| | 10. Internally, how is your organisation preparing and developing future executive ICT leaders? |

With regards to selecting an appropriate sample size for qualitative data, according to Saunders *et al.* (2012), multiple textbooks on research, mention that data must continue to be collected until very little or no new insights are received, thus reaching saturation. Noting that there were 13 interviews conducted in this study, Figure 9 has been created to illustrate the trend of codes created for the interviews: (1) there were 92 codes created for interviews 1 to

6; (2) there were an additional 29 codes created for interviews 7 to 10; and (3) there were 16 codes created for interviews 11 to 13.

**Figure 9: Graph showing number of codes generated against interview number**




**Source:** Researcher

## 4.9 Data Validity and Reliability

Data validity is defined as “the extent to which (a) data collection method or methods accurately measure what they were intended to measure and (b) the research findings are really about what they profess to be about” (Saunders & Lewis, 2012, p. 127). This is supported by Golafshani (2003), who alluded that validity pertains to “whether the means of measurement are accurate and whether they are actually measuring what they are intended to measure” (p. 599). Bailey (2018) associated a study’s validity, to that of consistency.

Reliability is defined as “the extent to which data collection methods and analysis procedures will produce consistent findings” (Saunders & Lewis, 2012, p. 128). This is supported by Golafshani (2003), who alluded that reliability pertains to “whether the result is replicable” (p. 599).

According to Golafshani (2003), it is critical to scrutinize the trustworthiness in qualitative research, in order to safeguard reliability. To prove the trustworthiness of this study, the

researcher provided for the following: (1) credibility, whereby the researcher used existing proven methods of research, and ensured that prior to the interview taking place, the researcher made himself familiar with the respective organisations culture (Shenton, 2004); (2) transferability, the researcher conducted in-depth research to understand the specific field and context which helped with performing comparisons and transferability (Shenton, 2004); and (3) dependability and confirmability, whereby the researcher provided in-depth description of the research design followed (Shenton, 2004).

According to Saunders and Lewis (2012), biases can occur, and in order to limit the potential occurrence of biases, the researcher ensured that careful preparations for the interviews was completed prior to the interviews being conducted, which ensured the following: a high level of knowledge on the subject topic and the interviewee's organisation; promoted credibility with the interviewee by supplying relevant information before the interview; selected an appropriate location where the interviews were conducted; ensured that the researcher was presentable; nature of opening comments when the interviews commenced; approached the questions correctly to reduce the scope of bias; presenting appropriate behaviour by the researcher; and demonstrated attentive listening skills (Saunders *et al.*, 2016). In addition, to further ensure the validity and reliability of the data and to guide the interview process, the interview questions were standardised, and the interviewees were given time to think and reflect on interview questions, during the interview.

## 4.10 Research Limitations

As stated by Hofstee (2006), limitations are inherent in all methods. Multiple biases may occur during qualitative research, as it is subjective (Saunders *et al.*, 2012; Zikmund, Babin, Carr & Griffin, 2013). The following are further limitations that were identified:

- Due to a small sample size selected, only the views and opinions of a limited number of interviewees were recorded and may not be representative of the views and opinions of other individuals.
- Geographical bias may have been introduced in the interviewee's responses, as the research was conducted in one geographical area, and only on a small sample of interviewees.
- With the study being cross-sectional "snap-shot" in nature, the views and opinions of the interviewees were gathered at that point in time, of which their views and opinions may change over time.

- With the proposed study being limited to Mobile Network Operators operating in the ICT industry, the views and opinions obtained from the interviewees in this industry, may not be representative of those in other industries.

# CHAPTER 5: RESULTS

## 5.1 Introduction

This chapter presents the results, which are arranged according to the research questions described in Chapter 3. These results are based on the findings from the analysis of data that was collected through in-depth, semi-structured, face-to-face interviews. To ensure consistency between the reviewed literature, research questions, data collection and method of analysis, a consistency matrix (see Table 3) was used.

## 5.2 Description of the Sample

During this study, a total of 13 interviewees were interviewed, described in Table 4. Purposive judgmental sampling, as well as snowball sampling was used to select the 13 interviewees from three major Mobile Network Operators in South Africa. In selecting these interviewees, their current roles within their respective organisations was considered, and they were perceived to have experience, life learnings, knowledge and insights to contribute to this study. The sample of 13 interviewees, consisted of 2 females and 11 males, all of whom held executive positions within their respective organisations. These interviewees included: Chief Information Officers; Chief Technology Officers; Managing Executives; Heads of Departments; General Managers; and Executives, as detailed in Table 4.

**Table 4: List of interviewees and current positions held**

| Interview No | Date | Mobile Network Operator | Sector | Gender | Years in designation | Years in organisation | Position Held |
|---|---|---|---|---|---|---|---|
| Int 1 | 2018/07/16 | MNO A | ICT | Female | 6 | 7 | Head of Service Relationship Management |
| Int 2 | 2018/07/23 | MNO D | ICT | Male | 0.3 | 5 | Executive - Commercial Contract Management |
| Int 3 | 2018/07/13 | MNO D | ICT | Female | 2 | 2 | Executive - Business Sales Mobile |
| Int 4 | 2018/07/26 | MNO D | ICT | Male | 1 | 8 | Executive - Mobile Products |
| Int 5 | 2018/08/01 | MNO C | ICT | Male | 6 | 9 | Executive Head of Internet of Things |
| Int 6 | 2018/08/06 | MNO C | ICT | Male | 5 | 8 | Executive Head of Enterprise Network Services |
| Int 7 | 2018/08/06 | MNO C | ICT | Male | 1.4 | 1.4 | Executive Head of Internet of Things Propositions |
| Int 8 | 2018/08/08 | MNO C | ICT | Male | 7 | 19.9 | Executive Head of Customer Service Operations |
| Int 9 | 2018/08/10 | MNO A | ICT | Male | 1.5 | 1.5 | Chief Technology and Information Officer |
| Int 10 | 2018/09/03 | MNO A | ICT | Male | 0.6 | 4 | Group Executive for Innovation Strategy |
| Int 11 | 2018/09/05 | MNO C | ICT | Male | 2.5 | 3.5 | Executive Head of Sales for IoT across Africa |
| Int 12 | 2018/09/07 | MNO C | ICT | Male | 1.5 | 11 | Head of Commercial for IoT Africa |
| Int 13 | 2018/09/07 | MNO C | ICT | Male | 14 | 25 | Executive for Business Resilience |

## 5.3 Presentations of Results

This study aimed to identify and evaluate what the critical competencies required by executive ICT leaders to succeed in their CAS. The first three interview questions posed to the interviewees were specifically formulated to establish their understanding of the ICT industry, specifically MNOs and the nature of executive leadership within the industry.

The first interview question posed to the interviewees was to obtain their views on how they defined the ICT industry, the composition of the industry, and a description of the operating environment. Similar insights were received from the interviewees in defining the industry, stating that it encompasses infrastructure and information, highlighted in the following quotes:

> "Basically, the four things you can do with information, right, you can capture it, transmit it, store it and process it. That's basically what the ICT industry does, it basically sets up systems, infrastructure and processes to capture, transmit, process and store information" (Int10).

> "I think in terms of the way I'd look at it, it's anything from an underlying infrastructure, of whether that's fibre or copper, right the way through to machine learning and artificial intelligence would be the description of an ICT capability, the outputs in the real sense would be the actions and information that's extracted out of that. So, anything in between that would include things like, basically from a switch to a laptop, right the way through to the mainframe processor" (Int5).

However, an interesting insight was received from interviewee number 5, who stated, "I think what we also need to include, is the people that deliver the ICT services, because you can't have a service without the people in between" (Int5). The interviewees shared similar sentiments, regarding the operating environment, indicating that: the ICT industry is experiencing rapid changes and these windows of change are shortening; convergence is being seen within the industry; given the constant changes in the industry, this will ultimately change the nature of how work is carried out; and the industry is competitive and regulated, leading to organisations needing to differentiate themselves in the market.

The second interview question posed, aimed to establish the interviewees understanding of the importance of the ICT industry, specifically the Mobile Network Operators to people,

organisations and the economy in general, and the value it creates. Similar insights were received from the interviewees, indicating that the MNOs were seen as: an enabler for people and businesses; a change agent; bringing inclusivity to both people and businesses; and a driver of the economy. An interesting insight received from interviewee number 9, indicated that mobile has changed human behaviour, who stated, "I think there are many, let me say anthropological studies today, saying that the second most common behaviour is watching the phone or the smartphone, after touching the air" (Int9).

The third interview question posed, aimed to establish the interviewees understanding of the importance of executive leadership within the ICT industry. The pertinence of asking this question was to confirm that the interviewees held leadership in high regard, as this question preceded the questions relating to competencies. Based on the responses received, the majority of all the interviewees indicated that executive leadership within the industry is essential.

In conclusion to interview questions 1, 2 and 3, based on the responses received, it is evident that the interviewees share similar insights regarding the industry and the context in which they operate, and the importance of executive leadership within this industry.

The results are presented according to research questions, as described in Chapter 3 and interview questions, as described in Appendix 3.

### 5.3.1 Results for Research Question 1

**Research Question 1: What are the critical competencies required by executive ICT leaders to succeed in their CAS?**

The interviewees were asked two interview questions which pertained to research question 1, namely: interview question 4, which asked the interviewees to provide their understanding of the concept of competencies; and interview question 5, which asked the interviewees to provide their perceptions on what competencies are required by executive ICT leaders.

Based on the responses received from the interviewees, many shared the same view of what the term “competencies” encompassed, namely, a person’s: skills; knowledge; abilities; capabilities; and behaviours, highlighted by the following quotes:

"It's a description of a capability that is required to execute a specific function. A capability that would be needed to execute a specific functional role" (Int5).

"From a leadership perspective, competencies are your basic skills, your behaviours" (Int12).

"… a competency… stems from your skills, your knowledge, your experience" (Int13).

The interviewees provided their perceptions on what competencies are required by executive ICT leaders. These have been grouped into five sub-categories, described in Table 5 below.

**Table 5: Sub-categories of Competencies**

| Rank | Sub-category | Frequency |
|---|---|---|
| 1 | Social skills | 25 |
| 2 | Personal competencies | 21 |
| 3 | Functional competencies | 19 |
| 4 | Cognitive skills | 14 |
| 5 | Management competencies | 12 |

Each of the sub-categories presented in Table 5, contains a separate frequency table detailing the individual competencies associated with the specific sub-category, which is presented and discussed below.

#### 5.3.1.1 Social Skills

Based on the results, ten competencies were aligned under the sub-category called social skills, and have been ranked according to their frequency, as described in Table 6.

**Table 6: Social Skills**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | People skills | 6 |
| 2 | Communication skills | 5 |
| 3 | Listening skills | 3 |
| 4 | Collaboration | 2 |
| 5 | Networking skills | 2 |
| 6 | Emotional intelligence | 2 |

| | | |
|---|---|---|
| 7 | Soft skills | 2 |
| 8 | Coaching | 1 |
| 9 | Empathetic | 1 |
| 10 | Challenge executives | 1 |

Six interviewees stated that people skills are essential, as highlighted in the following quotes:

> "Because you're a manager of people and a manager of function, understanding people and how you manage people, and that in itself is very complex because people are just so diverse and different" (Int1).

> "We work in the technology world and convergence is top of mind. But the big thing I believe that one needs to focus on, although we have the vision of AI and robots and all those kind of things, you need to converge people… within the work environment, the different cultures, the different competencies, the different knowledge areas, you need to converge them but also, you know, understanding the individual is of utmost importance, because when a person can't deliver or does not deliver, there might be underlying issues" (Int8).

Operating within these organisations, amongst the different stakeholders, five interviewees noted that one must know how to communicate with the different audiences, as highlighted in the following quotes:

> "… the decision makers are not technical people, so it's how you can translate technical, deep technical concepts and theories, and how you can translate that into a c-suite or c-level type conversation, where you can translate that technology to those people that they can understand" (Int6).

> "You need to be able to communicate to various levels in the organisation, to the absolute c-levels within the organisation, related to a situation that you face, a challenge that you have, a vision that you have, in order to convey a message of what the end result would be" (Int8).

Insights received from three interviewees, stated that the skill of listening was pertinent as an executive leader. You need to be able to listen to what your audiences are saying, both internally and externally of the organisation. Interviewee number 12 provided a brief but pertinent point:

"If you have the skill to listen, listen to the customer" (int12).

Two of the interviewees provided key insights, indicating that executive leaders need to embrace and foster collaboration within their working environments, and this was summed up by interviewee number 1:

> "… so that when we work together as a team, that we can build a strong team together and realising that it's not about me as a leader or individual, it's about the team and how we work together as a team" (Int1).

Noting the sheer size and complexity of these MNO organisations, two interviewees indicated that executive leaders need to be able to build networks around themselves, to get things done. It was noted that executive leaders need to build networks, both internally within the organisation, and externally to the organisation. Two pertinent quotes captured the essence of these insights:

> "… versus someone who maybe is in a sales environment, who needs to work really well with people, who needs to get people to follow them and buy into their targets and their numbers, has to get the ability to motivate people, to build kind of strong, as I said, strong relationships both with people in the business and outside the business" (Int4).

> "So, I think, as I mentioned previously, people management, networking skills, it's people networking skills" (Int6).

The responses received from the interviewees gave insight that it is of great importance that executive leaders need to understand people, as people have different: needs; outlooks; attitudes; ideals; and motivators, and as such, the workforce is very diverse. Therefore, it was noted by two interviewees that executive leaders require emotional intelligence, described in the quotes below:

> "So, for me, any leader or any good leader, for want of a better description, would need your emotional intelligence" (Int5).

> "But I think, very easily someone who doesn't have the hard skill and is sitting in my position, can pretty much run, as long as they have those leadership competencies, which are more around your listening, your communication, more your EQ" (Int3).

Further insights pertaining to social skills were received by the interviewees, noting that: an executive leader needs to have soft skills; be able to provide coaching to employees; be empathetic towards people; and be able to challenge your executives, which enhances the collective critical thinking.

#### 5.3.1.2 Personal Competencies

Based on the results, ten competencies were aligned under the sub-category called personal competencies, and have been ranked according to their frequency, as described in Table 7.

**Table 7: Personal Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Adaptability | 4 |
| 2 | Agility | 4 |
| 3 | Continual learning | 4 |
| 4 | Assertiveness | 2 |
| 5 | Know your strengths and weaknesses | 2 |
| 6 | Challenge yourself | 1 |
| 7 | Passion | 1 |
| 8 | Purpose driven attitude | 1 |
| 9 | Strong value system | 1 |
| 10 | Understand a leaders purpose | 1 |

Noting the fast-paced and dynamic operating environment that these MNO organisations operate in, the insights received from four of the interviewees, alluded to the fact that leaders need to be able to adapt to these changes occurring in their environment. Interviewee number 10, captured this insight thus:

> "The soft skills talk to the ability to communicate, simplify, to connect, to engage, to motivate, to inspire and to build trust, because fundamentally leaders in this space are all about designing, building and deploying very complex systems and keeping people committed to the journey, in a very complex world that's moving very rapidly and making changes as they go along and dealing with uncertainty" (Int10).

Aside from being adaptable, four interviewees further stressed the need for leaders to be agile, and be able to move quickly, highlighted in a quote from interviewee number 9:

> "Exactly… it's the leader in the wolf pack that is the first one to move" (Int9).

Due to the rapid pace of change within the industry, four interviewees expressed a need for the executive leader to continually learn, thereby keeping abreast with the changes occurring in their environment, both internally and externally, and understanding the impacts and effects that these changes may have within their operating sphere. Herewith are two quotes capturing the need for a leader to continually learn:

> "So, you could say in a more polished way, being the constant learner" (Int9).

> "… just make sure you are a student of life, to understand that every single minute, there's new tech out there" (Int12).

Understanding the goal of the MNOs, like any other profit seeking organisation, is to increase the organisational profits and to look after its stakeholders, and the way in which leaders orchestrate their roles, still requires a sense of assertiveness, which was received by two interviewees. This is highlighted in a quote from interviewee number 4:

> "And I think there's, certainly wherever I've worked, there's ruthless focus on the numbers, and you do whatever you have to do, to make the number, and you know whether that's through push or pull or however, soft or hard" (Int4).

As much as an executive leader is a leader, they still have strengths and weaknesses, and as such, two interviewees highlighted the point that executive leaders need to know themselves and understand their own strengths and weaknesses, which will assist them in carrying out their leadership roles. This key insight is highlighted in the following quote:

> "But being able to understand what your strengths are, and recognising what you are bringing to the table, and recognising that you don't need to have all of the answers, but you need to be a strong enough leader to say, how do I bring in the stronger skills, where I am weak" (Int1).

The interviewees noted further competencies that leaders need to have from a personal competencies perspective, such as: leaders needs to challenge themselves; leaders need to be passionate with a purpose driven attitude; leaders must have a strong value system; and a key insight that was received by one interviewee, was that leaders must understand their purpose, noted in the quote below:

"But if you look at purpose driven leaders, they are successful leaders, because they understand why they're there" (Int13).

#### 5.3.1.3 Functional Competencies

Based on the results, ten competencies were aligned under the sub-category called functional competencies, and have been ranked according to their frequency, as described in Table 8.

**Table 8: Functional Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Understanding of technology | 4 |
| 2 | Functional competencies | 3 |
| 3 | Commercial skills | 2 |
| 4 | Hard skills | 2 |
| 5 | Leadership requires less technical skills | 2 |
| 6 | Technical skills | 2 |
| 7 | Cross functional competency | 1 |
| 8 | Experience | 1 |
| 9 | Project management skills | 1 |
| 10 | Value creator | 1 |

Interviewees advocated for an understanding of technology and a leader's technical skills. Four interviewees advocated that leaders need to understand technology, however, they do not have to have in-depth technical skills, which was the opposite of insight received from two other interviewees who advocated that a leader's technical skills and understanding of technology is less important, highlighted in the following two quotes below:

"I think that the technology experience and the technology understanding is less important" (Int1).

"As an executive, even if I don't have the hard skills, I can employ the people that do have the know-how" (Int3).

Regarding functional competencies, three interviewees alluded to the point that a leaders' competencies would be associated with the function they hold, noted in the quote below:

> "So, if you're in a very operational area, I think leadership has to have, probably quite an operational focused competency and in that their softer skills, they may have good soft skills, but I think they have to be quite ruthless in the way in which they execute those things" (Int4).

In performing an executive leaders' duties, two interviewees expressed their views that an executive leader needs to have commercial skills in his or her "tool kit", as there are financial impacts to the decisions made by executive leaders. Commercial skill sets are noted in the quote below from interviewee number 7:

> "I look at security skill sets, data security and then I also look at commercial skill sets" (Int7).

Relating to skills and competencies required by executive leaders, two interviewees stated that a leader requires hard skills, to perform a particular function; two interviewees stated that executive leaders need to have technical skills, which supports the point made above by the four interviewees advocating for executive leaders to have an understanding of technology, which is summed up in the quote below:

> "I think the technical skills are of utmost importance, engineering skills, if I look at the way the telco is moving, going away from traditional voice products to data products, fixed line environments, cloud and data centres" (Int7).

A unique insight shared by interviewee number 4, was that executive leaders require a cross-functional competency, to understand the functions and workings of the other departments within the organisation. This point was seen in the light that every department carries out specific duties and should not be seen in isolation from the other departments. Therefore, the views shared, advocates that executive leaders should have peripheral vision of how the other departments function, which will be of benefit to the executive leader in making business related decisions within their operating area. This is highlighted in the quote below, from interviewee number 1:

> "And if then they require more of a generalist approach, then I think a very solid cross-functional competency. So, to understand multiple dimensions of a business like an MNO, from product, to the marketing, to the sales, to that and how those all are pulled together" (Int4).

Further insights received under functional competencies, pertained to experience. One interviewee, interviewee number 7, specifically expressed the need, that in today's economy, it is imperative for executive leaders to have experience, noted in the quote below:

> "I think again that comes with experience. If I look in our team, we've got very astute academic leaders, and then we've also got experienced leaders. And I think you need that blend in this fast-paced economy, which we are talking about, this forever changing ICT sector, the experiences are of utmost importance" (Int7).

Closing off on insights received relating to functional competencies, one interviewee stated that, project management skills is a critical competency for executive leaders to have, and one interviewee stated that an executive leader needs to be a value creator, which was very insightful, given the current context that MNOs operate in today, as highlighted in the quote below:

> "I think a big thing is to understand where you can create value in this whole value chain, especially when its moving now from this voice and communication, to be a digital chain" (Int12).

#### 5.3.1.4 Cognitive Skills

Based on the results, seven competencies were aligned under the sub-category called cognitive skills, and have been ranked according to their frequency, as described in Table 9.

**Table 9: Cognitive Skills**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Contextual intelligence | 6 |
| 2 | Big picture thinking | 2 |
| 3 | Foresight | 2 |
| 4 | Analytical skills | 1 |
| 5 | Contextual leadership | 1 |
| 6 | Curiosity | 1 |
| 7 | Think out of the box | 1 |

There were six interviewees who shared the same sentiment, advocating that executive leaders need to be cognisant and aware of their surroundings, and be able to adapt to the

situation at hand. These executive leaders need to have contextual intelligence. This is highlighted in the following three quotes:

> "So, you need to adapt to that audience" (Int2).

> "But at the end of the day, it's about bringing all this together" (Int8).

> "Because you need to understand the workforce, you need to have the ability, like I've said, to communicate on different levels" (Int8).

Insights received from two interviewees, alluded to the point that executive leaders need to understand the bigger picture and have big picture thinking. These insights were taken in the light that executive leaders need to have a greater understanding of the organisation, its strategy, its functional units to align the different working parts with the organisational strategy. The quotes below, highlights these insights:

> "So, communication, leadership includes a strategist, a person that can coordinate, a person that will be able to see the bigger picture, in order to align different areas of the business, to align different strategies at the end of the day" (Int8).

> "So, you need to challenge yourself, maybe the attention to details also, and to balance it with the big picture" (Int9).

Part of being an executive leader, is to be able to have foresight into what is coming, as this will affect the decisions that the executive leaders make today. This insight was received by two interviewees, who stated the following:

> "So, I think it goes down to the competency of the executive ICT leaders, to have a finger on the button in terms of what that migration of services looks like" (Int7).

> "The other element that is very important, is to be able to look ahead and to understand what new technologies are coming, and to see if they can provide something more" (Int9).

Interviewees provided the following insights regarding further competencies that executive leaders require: one interviewee stated that analytical skills are essential; and one interviewee stated that an executive leader needs to be able to identify problems within the environment,

in order to resolve them, which is related to contextual leadership. A very interesting insight received from one interviewee, was that executive leaders need to be curious, always asking questions, pushing the boundaries, which leads to constant learning for the executive, as highlighted in the quote below:

> "… the other thing that is very important for me, is curiosity" (Int9).

Being able to think out of the box, was very important to one interviewee, who alluded to the fact that given the amount of change within the industry, executive leaders need to be able to think differently, in order to solve the dynamic challenges that arise, noted in the quote below:

> "… is to really think out of the box, because we are faced with so much change" (Int13).

#### 5.3.1.5 Management Competencies

Based on the results, nine competencies were aligned under the sub-category called management competencies, and have been ranked according to their frequency, as described in Table 10.

**Table 10: Management Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Market intelligence | 3 |
| 2 | Need to know your customer | 2 |
| 3 | Alignment skills | 1 |
| 4 | Business management skills | 1 |
| 5 | Co-ordination skills | 1 |
| 6 | Enabling leadership | 1 |
| 7 | Organising skills | 1 |
| 8 | Risk taking | 1 |
| 9 | Vision | 1 |

Insights received from three interviewees, noted that executive leaders need to have market intelligence, understanding global markets and the markets in which they operate are imperative, described in the quotes below:

> "What I have found is that understanding the marketplace, is probably more important. Understanding the different market segments and almost translating that back,

bringing it internally to understand, how does the market and the needs of the market, drive the behaviour of the business" (Int1).

"I think firstly, they need a thorough understanding of... the competitive markets and the markets in which they operate" (Int4).

Noting the context in which the MNOs operate, two interviewees expressed their views indicating that executive leaders need to know their customers, highlighted in the two quotes below:

"So, understanding the customer is probably for me, one of the most important competencies" (Int1).

"And I think also how people are starting to consume ICT services. One needs to understand it from an experience perspective" (Int7).

Further insights regarding required competencies, was received from one interviewee, noting that an executive leader needs to be able to align the organisation and its numerous components, to the organisation's strategy. This insight was captured in the quote below:

"So, communication, leadership includes a strategist, a person that can coordinate, a person that will be able to see the bigger picture, in order to align different areas of the business, to align different strategies at the end of the day" (Int8).

What was further gathered in the interviews, was that executive leaders require business management skills, whereby they understand the underlying concepts, components and levers of business, and the know-how of operating a business. This view point was shared by one interviewee, quoted below:

"… a deep understanding of all of the functional building blocks of a business and what it requires to run a business" (Int1).

Administrative tasks involve the ability to co-ordinate a multitude of aspects, ranging from people to organisational resources, and one interviewee stated that an executive leader requires co-ordination skills, noted in the quote below:

"So, communication, leadership includes a strategist, a person that can coordinate, a person that will be able to see the bigger picture, in order to align different areas of the business, to align different strategies at the end of the day" (Int8).

Pertinent to the context that these MNO organisations operate in today, one interviewee expressed a strong view that executive leaders need to create a conducive environment for their employees to operate in. This refers to enabling leadership, as noted in the quotes below:

"… you need to create an environment for them and I think that's a critical thing" (Int12).

"… create the environment that allows people to be themselves in that environment" (Int12).

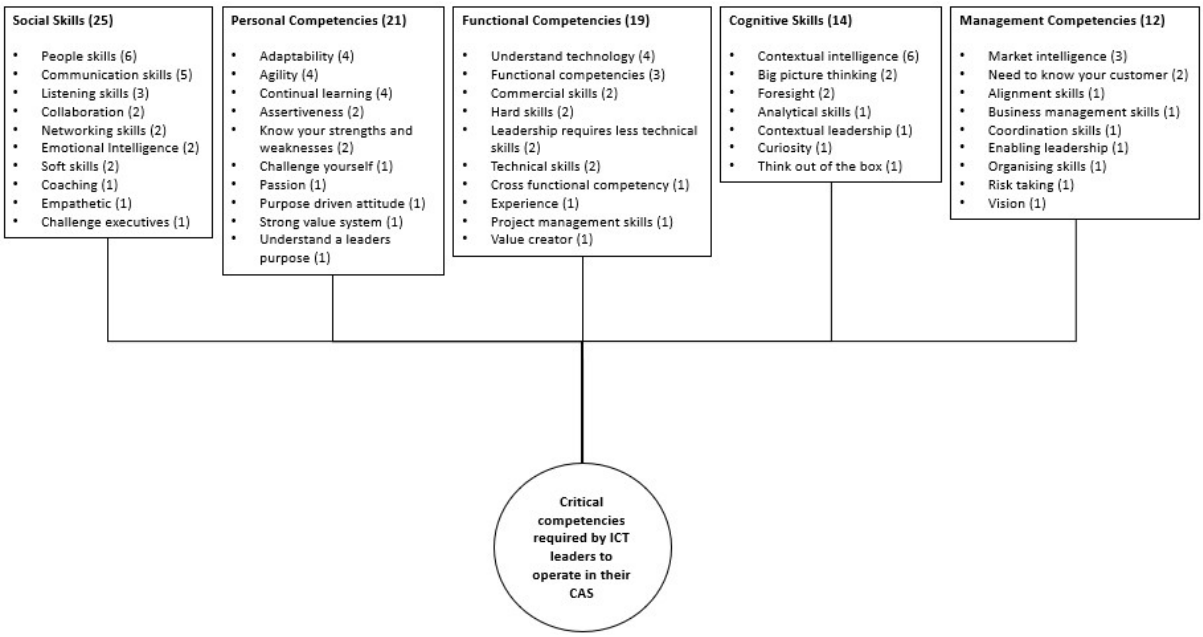
Three other competencies that executive leaders require, which were received in the interviews, are the following: they require organisational skills; they need to be able to take risks; and they need to have a vision. Regarding the point of being able to take risks, one interviewee provided some insight into their organisation, alluding to the fact that risks are inherent in the executive leaders' decisions. However, risks need to be taken, even though things don't always go according to plan. Quote from interviewee number 9:

"… the challenge of transformation with new technology adoption, is definitely painful, and in the short term maybe it is not paying off because service levels are becoming worse, your customers are complaining, your top executives maybe don't see the return of the investment and so on and so forth" (Int9).

#### 5.3.1.6 Summary of Results for Research Question 1

In summary, based on the findings for research question 1, Figure 10 has been created to illustrate the competencies that the executive ICT leaders at the MNOs stated were required to succeed in their CAS. These competencies have been group under subcategories, and the subcategories have been ranked as follows: (1) social skills, which had a frequency of 25; (2) personal competencies, which had a frequency of 21; (3) functional competencies which had a frequency of 19; (4) cognitive skills, which had a frequency of 14; and (5) management competencies, which had a frequency of 12.

**Figure 10: Critical Competencies as stated by executive ICT leaders at the MNOs**




## 5.3.2 Results for Research Question 2

**Research Question 2: Of the identified critical competencies, which competency is perceived to be the most important?**

The aim of research question 2, was to identify and evaluate which competency is the most important to executive ICT leaders operating in their CAS. The sixth interview question posed, requested the interviewees to rank their mentioned competencies in order of importance. Based on the responses received from all the interviewees, the results were analysed and have been grouped into six sub-categories, described in Table 11. These competencies have been coded according to frequency to answer the specific research question.

**Table 11: Sub-categories of Competencies**

| Rank | Sub-category | Frequency |
|---|---|---|
| 1 | Social skills | 17 |
| 2 | Functional competencies | 17 |
| 3 | Personal competencies | 10 |
| 4 | Cognitive skills | 9 |
| 5 | Management competencies | 3 |
| 6 | No trade off | 2 |

Each of the sub-categories presented in Table 11, contains a separate frequency table detailing the individual competencies associated with the specific sub-category, which is presented and discussed below.

#### 5.3.2.1 Social Skills

Based on the results, seven competencies were aligned under the sub-category called social skills, and have been ranked according to their frequency, as described in Table 12. Considering the responses received from the interviewees, competencies pertaining to social skills were referenced the most.

**Table 12: Social Skills Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | People skills | 7 |
| 2 | Communication skills | 3 |
| 3 | Collaboration | 2 |
| 4 | Listening skills | 2 |
| 5 | Coaching | 1 |
| 6 | Empathy | 1 |
| 7 | Networking skills | 1 |

The following competencies were noted as important by the interviewees, namely: (1) people skills, as executive leaders are responsible for managing and leading their diverse teams; (2) communication skills, as knowing how to effectively communicate with people is essential; (3) collaboration, which is required in order to work together to achieve the organisation's goals; (4) listening skills, which are required in order to understand your teams problems and needs; (5) coaching, in order to guide and grow your team members; (6) empathy, to understand people and the value that people bring to the organisation; and (7) networking skills, which are required to build a network of people around yourself. As per Table 12, people skills were mentioned most frequently, as the interviewees stressed the importance that people play within the organisation. Herewith are quotes from three interviewees:

> "… the convergence of your HR world, the people world that you are responsible for, in order to execute on your strategy and vision" (Int8).

> "I would say the first would probably be people leadership" (Int4).

"So, I think number one is people" (Int6).

#### 5.3.2.2 Functional Competencies

Based on the results, eight competencies were aligned under the sub-category called functional competencies, and have been ranked according to their frequency, as described in Table 13. Considering the responses received from the interviewees, competencies pertaining to function were referenced the second most. The interviewees acknowledged that as an executive leader, functional competencies are required, in order to perform tasks optimally.

**Table 13: Functional Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Technical skills | 6 |
| 2 | Leadership skills | 3 |
| 3 | Commercial skills | 2 |
| 4 | Customer centricity | 2 |
| 5 | Experience | 1 |
| 6 | Functional competencies | 1 |
| 7 | Knowledge | 1 |
| 8 | Value creator | 1 |

The following competencies were noted as important by the interviewees, namely: (1) technical skills, which are required to perform the day-to-day technical tasks within their role; (2) leadership skills, which are required to lead their teams; (3) commercial skills, as decisions that executive leaders make have financial implications for their organisation; (4) customer centricity, as executive leaders must not forget that the customer is a major stakeholder to their organisation; (5) experience, which is important when making decisions, given their role within the organisation; (6) functional competencies, which are required, in order to perform their specific functional duties; (7) knowledge, whereby executive leaders need to be knowledgeable regarding the market that they operate in; and (8) value creator, as executive leaders need to be able to translate their technical efforts into value for their organisation. As per Table 13, technical skills were mentioned most frequently, as the interviewees operate within a highly technologically driven industry. Their respective organisations are built on technology and the products and services they provide to their customers are technology based, and as such, it is evident that executive leaders require an understanding of technology. Regarding technical skills, which had the highest frequency under functional competencies, herewith are quotes from three interviewees:

"… technical skill. So, your own technical skill. I do believe as much as content is not the key criteria, a lot of leaders who lack content, get judged on being weak leaders, because they don't have some content" (Int1).

"I would say skills" (Int7).

"There is obviously, let me say, the technical skills are important" (Int9).

#### 5.3.2.3 Personal Competencies

Based on the results, six competencies were aligned under the sub-category called personal competencies, and have been ranked according to their frequency, as described in Table 14. Considering the responses received from the interviewees, competencies pertaining to the individual self, were referenced the third most. The interviewees acknowledged that executive leaders need to be self-aware, mindful of their own conduct in front of their team members and colleagues and be cognizant of their own abilities.

**Table 14: Personal Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Agility | 4 |
| 2 | Adaptability | 2 |
| 3 | Know your strengths and weaknesses | 1 |
| 4 | Purpose driven attitude | 1 |
| 5 | Resilient | 1 |
| 6 | Selflessness | 1 |

The following competencies were noted as important by the interviewees, namely: (1) agility, as executive leaders need to be able to move and act quickly in decision making, given the complexities of their role; (2) adaptability, as executive leaders need to be able to adapt to internal and external changes to the organisation, and as such, remain relevant; (3) know your strengths and weaknesses, as executive leaders need to be self-aware of their own abilities, and where there is room for improvement; (4) purpose driven attitude, as this feeds a positive and conducive environment, fostering motivation within the organisation; (5) resilient, as executive leaders need to be able to bounce back from adversities; and (6) selflessness, as executive leaders need to put their team members and organisation first. As per Table 14, agility was mentioned most frequently. Given the fast-paced nature of the industry in which

these MNO organisations operate, executive leaders require agility in their respective roles, in order to move quickly and make decisions to address the dynamic challenges and harness the opportunities that arise within their environment. Regarding agility, which had the highest frequency under personal competencies, herewith are quotes from two interviewees:

"Yeah, so let's go with agility as one" (Int5).

"The agility, definitely which is correlated" (Int9).

#### 5.3.2.4 Cognitive Skills

Based on the results, five competencies were aligned under the sub-category called cognitive skills, and have been ranked according to their frequency, as described in Table 15. Considering the responses received from the interviewees, competencies pertaining to cognitive skills, were referenced fourth most. The interviewees acknowledged that executive leaders need to be able to use their intellect in connecting the dots and thinking at a different level. In addition, they need to be emotionally stable and be able to operate in different contexts.

**Table 15: Cognitive Skills**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Contextual intelligence | 4 |
| 2 | Emotional intelligence | 2 |
| 3 | Common sense | 1 |
| 4 | Curiosity | 1 |
| 5 | Think out of the box | 1 |

The following competencies were noted as important by the interviewees, namely: (1) contextual intelligence, as executive leaders need to be able to integrate different components, be able to reflect and envision the future; (2) emotional intelligence, as executive leaders need to be able to connect with team members and colleagues on an emotional level and be empathetic, (3) common sense, as executive leaders need to be able to apply common sense to problems within the organisation; (4) curiosity, as executive leaders need to have an open mind, to ask questions and probe, in order to attain a higher level of understanding; and (5) think out the box, as executive leaders need to be able to think creatively, in order to solve problems and create opportunities. As per Table 15, contextual intelligence was mentioned most frequently. It is evident that within the executive leader’s role, he or she needs to have

contextual intelligence, in essence, having knowledge of the past, present variables and foreseeable future outcomes, in order to make decisions, as well as customising their knowledge, skills and approach to different scenarios. Regarding contextual intelligence, which had the highest frequency under cognitive skills, herewith are quotes from two interviewees:

> "And then the last thing that I think is absolutely critical about leaders, is to bring that together, and to have that kind of integrated way of thinking about things and functions, and making sure that they can tie things together, and they can logically connect things" (Int1).

> "… foresight into future technologies" (Int6).

#### 5.3.2.5 Management Competencies

Based on the results, three competencies were aligned under the sub-category management competencies, and have been ranked according to their frequency, as described in Table 16. Considering the responses received from the interviewees, competencies pertaining to management, were referenced fifth most. The interviewees acknowledged that executive leaders need to be able manage and control their operating environment.

**Table 16: Management Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Enabling leadership | 1 |
| 2 | Market intelligence | 1 |
| 3 | Co-ordination skills | 1 |

The following competencies were noted as important by the interviewees, namely: (1) enabling leadership, as executive leaders need to create a conducive environment for their teams to operate in; (2) market intelligence, as executive leaders need to know and be aware of what drives their customer's needs; and (3) co-ordination skills, as executive leaders need to be able to coordinate a multitude of resources, in order to drive toward achieving a common goal. As per Table 16, enabling leadership, market intelligence and coordination skills were mentioned equally. Herewith are the three comments in sequence, from the interviewees:

> "… then make sure that you create the environment" (Int12).

"… you must think out of the box, you must be fast, you must be resilient, you must understand your market, you must be knowledgeable" (Int13).

"… we need somebody to coordinate" (Int13).

#### 5.3.2.6 No Trade Off

When this interview question six was posed to the interviewees, it was observed that 11 interviewees had to ponder on this question before providing their responses. However, two interviewees, without any hesitation, advocated that as an executive leader, you cannot trade-off between competencies, as described in Table 17.

**Table 17: No Trade Off**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | No trade off between competencies | 2 |

Both interviewees felt strongly, that there needs to be balance between the different competencies that executive leaders require, in order to operate effectively within their environment. Herewith are the pertinent quotes from the two interviewees below:

"You can't trade them off, there's no trade off here. If all you have are hard skills, you should be in a back office. And if all you have is soft skills, well you can't be trusted with anything technically complex, so you have to have both skills. You can't trade-off between them" (Int10).

"I don't think there is a ranking in terms of importance, because I think they're all equally important, to be honest. I think you can't say you'll being less in one and more in the other" (Int11).

However, approaching this research question from a different perspective, in order to get a better understanding of which competency was most influential to these executive leaders, interview questions seven and eight were posed. The seventh interview question posed, requested the interviewees to state which competency was most influential to their development as a leader. And the eighth interview question asked them to substantiate their

answer. Based on the responses received from all the interviewees, the results were analysed and have been presented in a frequency table, described in Table 18 below.

**Table 18: Sub-categories of Competencies**

| Rank | Sub-category | Frequency |
|---|---|---|
| 1 | Social skills | 8 |
| 2 | Functional competencies | 3 |
| 3 | Personal competencies | 1 |
| 4 | Cognitive skills | 1 |

### 5.3.2.7 Social Skills

Based on the results, eight competencies were aligned under the sub-category called social skills, and have been ranked according to their frequency, as described in Table 19. Considering the responses received from the interviewees, competencies pertaining to social skills were referenced the most.

**Table 19: Social Skills**

| Rank | Sub-category | Frequency |
|---|---|---|
| 1 | People skills | 5 |
| 2 | Listening skills | 2 |
| 3 | Collaboration | 1 |

Insights received from five interviewees, stated that having and developing their people skills was the most influential competency for their development as a leader. Herewith are the quotes below:

> "I think it's probably for me the third one, and the reason why I'm saying that, and that's the one around becoming an enabler of people" (Int1).

> "I think working well with people, for me, is the one thing that I can say has got me through most tough situations" (Int4).

> "Definitely... the responsibility that I have now, on that list... the HR one. Purely because I sit with a very big resource responsibility, of which it is spread across a large, broad skills level and qualification level" (Int8).

And the reasons why these interviewees considered people skills to be the most influential to their development as a leader, was that in essence, as an executive leader, you require people to work together, in order to achieve the organisational objectives, and you need the people pulling in the same direction as the executive leader. Herewith captured in the quotes below:

> "So, my belief is that, if you are good to the people and you enable people, you will have success no matter what" (Int1).

> "I think I've had the ability to get people to work with me, rather than for me, or work with me rather than against me" (Int4).

> "I would say the wide range of resources that people, the actual person, the bum that fills the seat, that you need to coordinate, in order to deliver on a single vision strategy of which ours are customer intimacy, customer centricity" (Int8).

Two interviewees stated that their most influential competency was their listening skills. As an executive leader, one must listen to their people within the organisation. Herewith are the two quotes below:

> "For me, I think it's the listening skill, because I've got to listen to what my people are saying" (Int3).

> "I am going to stick to my listening one" (Int12).

And one interviewee stated that their most influential competency was collaboration.

> "I would say collaboration" (Int5).

The reasons why this interviewee stated that collaboration was most influential, was that as an executive leader, your knowledge is limited, and you require to tap into other sources for information, as well as you require to work with people, in order to carry out your tasks. Herewith are two further quotes:

> "Because I don't think a leader knows it all anymore. That leader, in order to be a leader, you need to be able to, to engage other stakeholders to be open to other ideas, new ideas, fresh ideas and you can only get that if you have a strong sense of collaboration with others" (Int5).

"Typically, a large ICT organisation is made up of many stakeholders with different KPI's or KPA's, in order to make sure that you can achieve your KPA's, you need to collaborate with others and make sure or balance their KPA's, to ensure you have a positive outcome for your KPA's. And you can only do that by collaborating, you can't be dictatorial" (Int5).

#### 5.3.2.8 Functional Competencies

Based on the results, three competencies were aligned under the sub-category called functional competencies, and all three had the same frequency, as described in Table 20. Considering the responses received from the interviewees, competencies pertaining to function were referenced the most.

**Table 20: Functional Competencies**

| Rank | Sub-category | Frequency |
|---|---|---|
| 1 | Knowledge | 1 |
| 2 | Leadership skills | 1 |
| 3 | Negotiation skills | 1 |

Interviewee number 6, stated that knowledge was most influential to them, as they are required to be knowledgeable around their area of expertise or a specific topic, in order to provide valuable input to their senior stakeholders, highlighted in the quotes below:

"I think the most important competency is being knowledgeable around a specific topic when conversing with my senior stakeholders. And being able to present that, that specific topic and talk about it" (Int6).
"I think if your stakeholders, your senior stakeholders or your boss or whatever, can see that you're knowledgeable around a broad spectrum of subjects, it builds confidence in him that you're managing your specific area correctly and he doesn't have to micromanage you all the time" (Int6).

Interviewee number 13, stated that the competency of leadership was most influential, as executive leaders need to understand the people that they are responsible for, and know how to create an environment for them to operate and grow within, highlighted in the quotes below:

"I want to say leadership" (Int13).

"What's the purpose of everybody and to allow them to accelerate in terms of that specific discipline" (Int13).

Interviewee number 2, stated that negotiation was most influential to them, as this was the role which they are involved in within their organisation, highlighted in the quote below:

"For me personally it's negotiation. Negotiation tactics. But that's the role I go into and budget forecasting and commercial governance. That's the role I play, so that's the most important competency" (Int2)

### 5.3.2.9 Personal Competencies

Based on the results, an additional competency was mentioned by interviewee number 9, which was a unique insight into the executive leader's context in which they operate, as described in Table 21.

**Table 21: Personal Competencies**

| Rank | Sub-category | Frequency |
|---|---|---|
| 1 | Consciousness | 1 |

This interviewee stated that "consciousness" was extremely important, as given the technological environment and tools that leaders use to perform their work, it is easy for one's mind to not be engaged in the present, especially with dealing with others, highlighted in the quotes below:

"So, what I'm really working on now is, something that you could define as consciousness" (Int9).

"So, in this multi-screen environment, the risk is that you lose attention to the verbal communication" (Int9).

"Yeah, vice versa, the productivity and the value that you can generate but also, I would say, the human touch that you can demonstrate if you are fully focused in the discussion, is hugely important" (Int9).

### 5.3.2.10 Cognitive Skills

Based on the results, one competency was aligned under the sub-category called cognitive skills, as described in Table 22.

**Table 22: Cognitive Skills**

| Rank | Sub-category | Frequency |
|---|---|---|
| 1 | Contextual intelligence | 1 |

Interviewee number 10 stated that an executive leader needs to be able to look forward into what the future may be, based on the current variables of today, which is a key competency to have as a leader, highlighted in the quotes below:

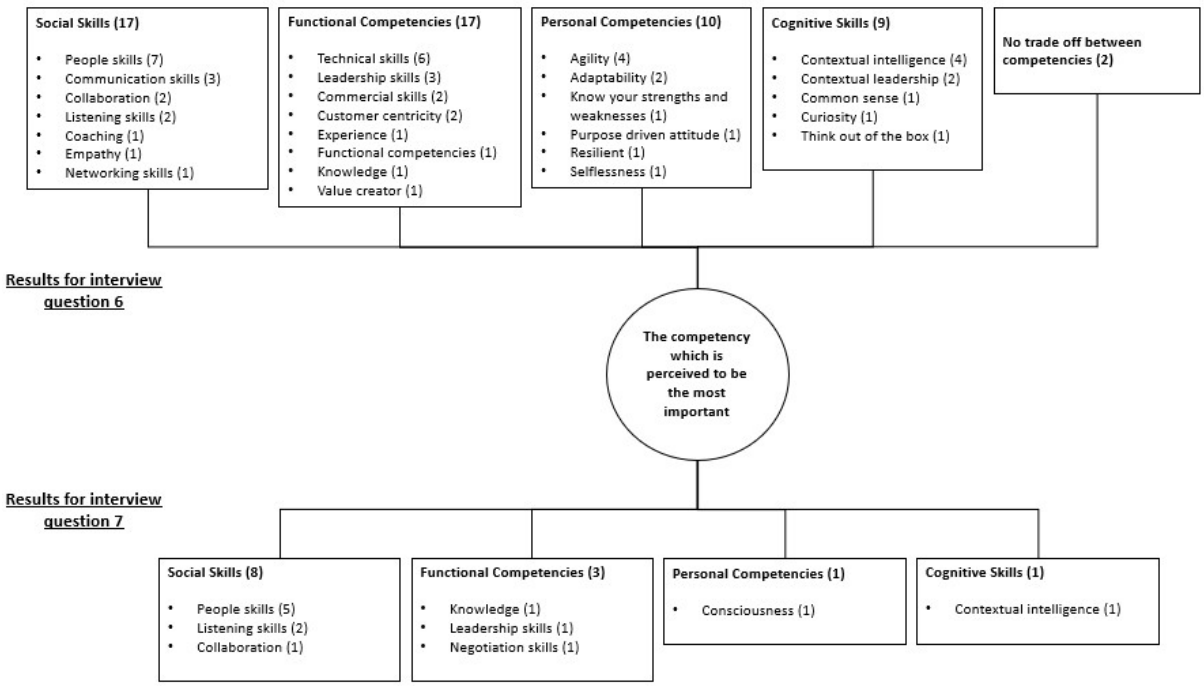
> "I think the ability to envision the future based on the realities of today. That's a powerful skill that's helped me a lot" (Int10).

> "Because its scarce. Very few people know how to do that, so that can be a distinctive competency" (Int10).

### 5.3.2.11 Summary of Results for Research Question 2

In summary, based on the findings for research question 2, Figure 11 has been created to illustrate the comparison of competencies between research findings for interview question 6 and 7. These competencies have been ranked in terms of importance for each interview question and have been grouped under subcategories. The subcategories for interview question 6, have been ranked as follows: (1) social skills, which had a frequency of 17; (2) functional competencies, which had a frequency of 17; (3) personal competencies, which had a frequency of 10; (4) cognitive skills, which had a frequency of 9; and (5) no trade-off between competencies, which had a frequency of 2. The subcategories for interview question 7, have been ranked as follows: (1) social skills, which had a frequency of 8; (2) functional competencies which had a frequency of 3; (3) personal competencies, which had a frequency of 1; and (4) cognitive skills, which had a frequency of 1.

**Figure 11: Comparison of Competencies between Research Findings for Interview Questions 6 and 7**




### 5.3.3 Results for Research Question 3

**Research Question 3: What additional competencies would executive ICT leaders need to develop in the next five years?**

The aim of research question 3 was to identify and evaluate what competencies are perceived to be the competencies ICT leaders would need to develop in the next five years. There was one interview question, that pertained to research question 3.

The ninth interview question posed, requested the interviewees to state which additional competencies executive ICT leaders would need to develop in the next five years. Based on the responses received from all the interviewees, the results were analysed and have been grouped into five sub-categories, described in Table 23 below. These competencies have been coded according to frequency to answer the specific research question.

**Table 23: Sub-categories of Competencies**

| Rank | Sub-category | Frequency |
|---|---|---|
| 1 | Personal competencies | 14 |
| 2 | Functional competencies | 13 |
| 3 | Social skills | 8 |
| 4 | Cognitive skills | 6 |
| 5 | Management competencies | 2 |

### 5.3.3.1 Personal Competencies

Based on the results, eight competencies were aligned under the sub-category called personal competencies, and have been ranked according to their frequency, as described in Table 24.

**Table 24: Personal Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Adaptability | 4 |
| 2 | Continual learning | 3 |
| 3 | Agility | 2 |
| 4 | Accountability | 1 |
| 5 | Change agent | 1 |
| 6 | Resilient | 1 |
| 7 | Responsibility | 1 |
| 8 | Selflessness | 1 |

The following competencies were received from the interviewees, with their corresponding frequency: adaptability (4); continual learning (3); agility (2); accountability (1); being a change agent (1); being resilient (1); responsibility (1); and selflessness (1). As per Table 24, adaptability was mentioned most frequently. Given the rate of change and dynamic nature of the industry, executive leaders at the MNOs would need to be adaptable to their evolving environment. They would also need to continuously learn and acquire new skills and knowledge, in order to remain relevant. Regarding adaptability, which had the highest frequency under personal competencies, herewith are quotes from the interviewees:

> "We shouldn't be scared of these technologies. I think if we look at, let me say, the more experienced executives, if I'm politically correct, and their rate of fear to change. You know, we need to eliminate what I know is my power and learn new skills and share that power" (Int2).

"So, in my mind is also in the next five years, there will have to be a trade-off between the experience, the calm and risk focused approach, to keep sanity in the bigger picture for these fast developments, you know way of working" (Int13).

"… if you are not challenged by the pace of the company and the new way of working, you are going to wake up without a job, to be honest with you" (Int13).

Regarding continual learning, which had a frequency of three, under personal competencies, herewith are quotes from the interviewees:

"So yes, you can start out as a leader that has weak areas, but through your continuous learning, you have to strengthen capabilities in other areas, because that in itself, makes you a better leader" (Int1).

"A leader in a technology organisation usually is not the guru, as we said before, usually, he is the constant learner or closer to that stereotype, if you want" (Int9).

"… otherwise it is going to be a calamity, because you will find yourself staying behind, if you don't renew yourself" (Int13).

#### 5.3.3.2 Functional Competencies

Based on the results, seven competencies were aligned under the sub-category called functional competencies, and have been ranked according to their frequency, as described in Table 25.

**Table 25: Functional Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Technical skills | 4 |
| 2 | Customer centricity | 2 |
| 3 | Experience | 2 |
| 4 | Value creator | 2 |
| 5 | Commercial skills | 1 |
| 6 | Leadership competence | 1 |
| 7 | Strategic leadership | 1 |

The following competencies were received from the interviewees, with their corresponding frequency: technical skills (4); customer centricity (2); experience (2); value creator (2); commercial skills (1); leadership competence (1); and strategic leadership (1). As per Table 25, technical skills were mentioned most frequently. Due to the constantly evolving nature of technology, and the use of technology internally and externally to the organisation, it is evident that the executive leaders would need to continually develop their technical skills. Based on the interviewees responses, it would be ideal that regardless of role, the executive leader has technical knowledge, as they operate in a technological industry. Regarding technical skills, which had the highest frequency under functional competencies, herewith are quotes from three interviewees:

> "And I think in that there are so many new competencies that people are going to have to learn around, artificial intelligence, around machine learning, around IoT, around big data, and how big data can be properly used for your business, to make the right decisions, at the right time" (Int4).

> "… it's the typical understanding of how big data, how that can be used in business, understanding of how in conjunction with that big data, machine learning, is going to change the ICT industry" (Int6).

> "… understanding the world of technology much better than what we do now, hence the importance to skill yourself on various levels" (Int8).

#### 5.3.3.3 Social Skills

Based on the results, four competencies were aligned under the sub-category called social skills, and have been ranked according to their frequency, as described in Table 26.

**Table 26: Social Skills Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | People skills | 4 |
| 2 | Collaboration | 2 |
| 3 | Empathetic | 1 |
| 4 | Listening skills | 1 |

The following competencies were received from the interviewees, with their corresponding frequency: people skills (4); collaboration (2); empathetic (1); and listening skills (1). As per Table 26, people skills were mentioned most frequently. Based on the responses received from the interviewees, it is evident that organisations require people to collaborate, in order to deliver products and services to their customers. Given the diversity of people within the organisation, and the generational differences of people, executive leaders would need people skills to understand how to lead a changing workforce, and as such, would need to continually nurture their people skills. Regarding people skills, which had the highest frequency under social skills, herewith are quotes from three interviewees:

> "That whole skill set is going to have to change to a more program-based environment, where you need to change your team skill sets over that time, so it comes back to the people management, how are you going to take them through that journey" (Int6).

> "… be able to converge people, in order to work and manage within an ICT converged world" (Int8).

> "So, this is also part of making people comfortable and knowing that they are appreciated for their job" (Int9).

#### 5.3.3.4 Cognitive Skills

Based on the results, two competencies were aligned under the sub-category called cognitive skills, and have been ranked according to their frequency, as described in Table 27.

**Table 27: Cognitive Skills**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Contextual intelligence | 4 |
| 2 | Contextual leadership | 1 |

The following competencies were received from the interviewees, with their corresponding frequency: contextual intelligence (4); and contextual leadership (1). As per Table 27, contextual intelligence was mentioned most frequently. Based on the responses received from the interviewees, it was noted that due to the environmental changes, an executive leader would need to immerse themselves in the current context, acknowledging past, present and future and be aware of his surroundings, in order to navigate their organisation through the

challenges and opportunities that lie ahead. Regarding contextual intelligence, which had the highest frequency under cognitive skills, herewith are quotes from three interviewees:

> "I think that most people that operate where we are right now, don't understand where our industry is going. They have no idea around how this industry will be changed by global competitors. And I also think that the status quo has remained for far too long" (Int4).

> "And then also very important what I've picked up is… It's not necessarily communication but continuous awareness, that's the word that I'm looking for, awareness of what we do, what are we there for, what does the neighbourhood do" (Int8).

> "So, leaders going forward, what I'm trying to say must be alert. They must understand how things work, how the new way of thinking will influence his workplace" (Int13).

#### 5.3.3.5 Management Competencies

Based on the results, two competencies were aligned under the sub-category management competencies, and have been ranked according to their frequency, as described in Table 28.

**Table 28: Management Competencies**

| Rank | Codes | Frequency |
|---|---|---|
| 1 | Change management | 1 |
| 2 | Enabling leadership | 1 |

The following competencies were received from the interviewees, with their corresponding frequency: change management (1); and enabling leadership (1). As per Table 28, both change management and enabling leadership were equally mentioned. Interviewees note that executive leaders will need to manage the constant changes within the organisation, involved with the rapidly changing technological environment. Also, going forward, executive leaders need to create an enabling environment for the organisation’s employees, to promote their creative abilities. Herewith are two quotes in sequence:

"And there's also a lot of fear in people, and we see, we hear it here. You know, what will happen if Internet of Things takes over call centres completely, … what will happen to three thousand call centre agents. So, leaders in the next five years will have to manage those changes, those expectations and those fears. So, they will also need competencies to do deal with that" (Int13).

"So, I think leadership will have to address that, by opening opportunities, to give, to awaken the entrepreneurial thinking in people" (Int13).

Interviewees were asked how their organisation is preparing future executive leaders. They shared the same sentiments indicating that their organisation has internal talent management and executive development programmes, highlighted in the following quotes:

"So, to confirm it in terms of internal, there's a strong focus on talent planning or talent identification, deployment of your middle to upper management into bigger broader roles" (Int5).

"Each employee has a career path and a development plan, so there's a fair amount of work in the HR space, aimed at guiding leaders, young leaders, so that they can become the leaders of tomorrow" (Int10).

However, one interviewee indicated a lack of commitment by their organisation to developing future executive leaders, noted in the quote below:

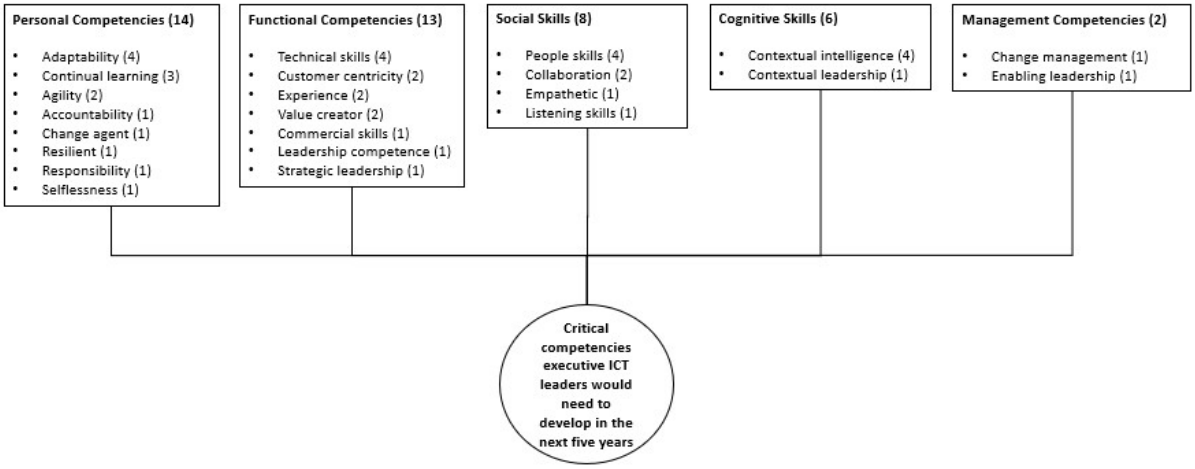
"I don't think that our organisation is really committed to developing future leaders that are going to set the business apart… " (Int1).

"So, at this stage I think the exercises that we do are more tick box, instead of really truly taking people that are skilled and capable, and making sure that they groom them into leaders that have both the theory, as well as the experience, as well as the exposure, that makes them better and stronger leaders" (Int1).

### 5.3.3.6 Summary of Results for Research Question 2

In summary, based on the findings for research question 3, Figure 12 has been created to illustrate the competencies that ICT leaders would need to develop in the next five years. These competencies have been group under subcategories, and the subcategories have been ranked as follows: (1) personal competencies, which had a frequency of 14; (2) functional competencies, which had a frequency of 13; (3) social skills, which had a frequency of 8; (4) cognitive skills, which had a frequency of 6; and (5) management competencies, which had a frequency of 2.

**Figure 12: Competencies ICT leaders would need to develop in the next five years**




## 5.4 Summary

Ten interview questions were covered in the 13 in-depth, semi-structured, face-to-face interviews and the results have been presented in this chapter. The main findings for research question 1, was that there were 46 competencies which these executive ICT leaders stated were important to lead in their CAS. Based on the competencies being ranked and grouped into subcategories, the subcategory with the highest frequency was social skills. Within this subcategory, people skills had the highest frequency. The main findings for research question 2, was that the subcategory called social skills had the highest frequency. Within this subcategory, people skills had the highest frequency. However, it was found that two interviewees advocated that one cannot trade-off between competencies. The main findings for research question 3, was that the subcategory called personal competencies had the highest frequency, followed by functional competencies, then social skills, then cognitive skills, and lastly management competencies. Some of the competencies that had high frequencies

within these subcategories were: adaptability (4); technical skills (4); people skills (4); contextual intelligence (4); and continual learning (3).

# CHAPTER 6: DISCUSSION OF RESULTS

## 6.1 Introduction

The purpose of the study was to compare what competencies literature stated are required for a Complex Adaptive System, as opposed to what the executive ICT leaders at Mobile Network Operators' stated their competencies are. This chapter presents a discussion of the research findings and has been laid out according to the research questions.

## 6.2 Discussion of Results for Research Question 1

**Research Question 1: What are the critical competencies required by executive ICT leaders to succeed in their CAS?**

In analysing the data received for research question 1, 46 critical competencies were identified as critical to these executive ICT leaders. These competencies have been described in Figure 10. In analysing these competencies, they were grouped under five subcategories, namely: social skills; personal competencies; functional competencies; cognitive skills; and management competencies (Janjua *et al.*, 2012), and ranked according to frequency, as described in Figure 10.

### 6.2.1 Critical Competencies as stated by Executive ICT Leaders at the MNOs

Herewith is a summary of the interpreted findings according to subcategory, as described in Figure 10.

**Social Skills:** Considering the MNOs employ a multitude of diverse people, and that people are a vital component of these organisations resources and ecosystem, it was established that these executive leaders placed the most emphasis on having social skills. Under this subcategory, it was further found that people skills were referenced the most by the leaders, having a frequency of six. It was assumed that these executive leaders understood the benefits of having productive employees within their teams and organisation, and given the complexity of people, having the ability to engage and deal with people pivoting them along, was seen as imperative for these executive leaders, in order to achieve their organisational objectives. Although people skills were not explicitly stated as a requirement to operating in a

CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

The complexity of the different audiences within these organisations were acknowledged, and it was found that interactions between these executive leaders and their multiple stakeholders takes up a significant part of their day. Therefore, based on data from five interviewees, it was established that effective communication skills are a necessity for these leaders to have in their environment, to be able to communicate between their different audiences. Although communications skills were not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

The art of listening was established to be a pertinent competency, as executive leaders need to listen to what all their respective stakeholders are saying, both internally and externally. Although listening skills were not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

It was established that collaboration between people was critical in these leaders' environments, and these leaders need to be able to get their respective teams to work together optimally, to work through challenges their organisations face and to achieve their objectives. Uhl-Bien and Arena (2017) and Uhl-Bien *et al.* (2007) argued that, in order to generate adaptive responses, collaboration between the agents, that is the people and groups, is required.

The data revealed that these executive leaders require strong networking skills, both internally and externally to the organisation, to bring about collaboration between their various stakeholders and to create and foster a conducive environment. Uhl-Bien and Arena (2017), Uhl-Bien *et al.* (2007) and Clarke (2013) argued that networking is essential and assists with bringing people together to share and exchange ideas. Clarke (2013) further stated that leaders need to create a conducive environment and empower their teams to work together.

Further competencies that were identified as being critical for these executive leaders were: emotional intelligence; soft skills; coaching; empathy; and being able to challenge executives, which were not explicitly stated as a requirement to operating in a CAS, according to literature.

Interestingly, literature described other competencies associated with social skills that are required to operating in a CAS, such as: tension which is required between the operational and entrepreneurial sides of the organisation, which creates an impetus to act (Uhl-Bien & Arena, 2017; Clarke, 2013; Uhl-Bien *et al.,* 2007); being able to act as bridges, in order to aid in the acceptance of ideas into its particular area (Uhl-Bien & Arena, 2017); and brokerage, which is required as an entrepreneurial leader, to muster up support from the different groups of the business (Uhl-Bien & Arena, 2017), however, these executive leaders did not mention these competencies.

In addition, further competencies which literature stated are important for leaders to have in this environment and were not mentioned by the executive leaders interviewed, are discussed below.

In the complex environment that leaders operate, Osborne and Hinson (2011) stated that, in order to bring about change, it is essential that leaders enable a diversity of people to congregate and discuss matters of common importance, in order to ideate and address their issues. Clarke (2013) stated that leaders need to encourage inclusion, which strengthens relationships among its members, as such, building social capital. Strategic leaders can use storytelling to positively influence the engagements between agents, as well as use it to lead the organisation to the edge of chaos, where the organisation can innovate and adapt (Boal & Schultz, 2007).

**Personal Competencies:** In analysing the data, it was established that the environment that these interviewees respective organisations operate in, is uncertain and is under constant and rapid change. Thus, it was identified that these executive leaders need to be flexible and be able to adapt to their environment. As argued in literature, entrepreneurial leaders need to be flexible with their ideas, acknowledging that their ideas may change (Uhl-Bien & Arena; 2017), and in order for organisations to innovate, administrative leaders need to adapt to their changing environment as well as be personally adaptive themselves (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007).

It was found that agility is a key competency for these executive leaders, as they need to be able to operate with speed within their respective roles, as stated by four interviewees. Although agility was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

As a result of the constant change, it was established that knowledge of current technologies becomes outdated quickly, and in order to remain relevant, executive leaders need to be continuous learners. Although being a constant learner was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

It was further found that executive leaders need to enable the ability to challenge the status quo, as this is how they press forward in their understanding and developing their critical thinking. Clarke (2013) and Uhl-Bien and Arena (2017), argued that a leader needs to be a change agent, who is not afraid to challenge the status quo, in order to bring about change. Although these leaders noted the need to challenge the status quo, they did not mention the need to be change agents. As alluded to by Osborne and Hinson (2011), given these times of complexity, leaders need to enable an environment whereby employees are comfortable to challenge the status quo.

It was further identified, that although an executive leader demonstrates a softer side with regards to the social aspects of the organisation, they still require a level of assertiveness when it comes to achieving targets for their organisation. Although assertiveness was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

Further findings noted that these executive leaders placed importance on knowing their own strengths and weaknesses, it was identified that executive leaders need to be able to look introspectively and identify where they can improve. Although knowing your strengths and weaknesses was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

A strong value system and purpose driven attitude was identified as critical, as they are a leader within their organisation and should lead by example. Although these were not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

Given the amount of challenges that entrepreneurial leaders face internally within their organisation, they need to be resilient and persistent in their efforts, which required patience

and tenacity (Uhl-Bien & Arena, 2017). It was found that these executive leaders only referenced resilience and not persistence and tenacity.

The ability for leaders to take risks was identified as important within their respective roles. Uhl-Bien and Arena (2017) argued that enabling leaders need to be able to take risks, whilst creating and nurturing a conducive operating environment, in which ideas can emerge.

A key to generating ideas from diverse agents, is through the use of tension, and it is argued by the authors, that enabling leaders need to be accustomed to working in an environment where tension is present (Uhl-Bien & Arena, 2017; Clarke, 2013; Uhl-Bien *et al.*, 2007). Interestingly, although these leaders operate in an environment filled with tension, it was found that these executive leaders made no mention of the use of tension or being comfortable in such an environment.

**Functional Competencies:** From the data analysed, a very interesting insight was found where four interviewees advocated that it is of utmost importance for executive leaders to have technical skills, especially considering the way that their organisations are moving from a technology perspective, which was in contradiction to two other interviewees, who stated that their technical skills and understanding of technology is of lesser importance. Considering that these organisations are technology focused, this was a particularly interesting find. Although technical skills were not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

In addition the data revealed that executive leaders require functional competencies, in order for them to carry out their specific tasks, but in addition to this, it was further established that these leaders also need to understand and be acutely aware of how all the other departments work within their organisation, so that they are aware of the bigger picture, thus reinforcing the need for cross functional competencies. Although cross functional competencies were not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

Considering that these executive leaders make a multitude of decisions daily, it was found that they require commercial competencies, as their decisions have financial implications for their organisation. Although commercial competencies were not explicitly stated as a requirement

to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

It was established that organisations require a blend of academic, as well as experienced (well-seasoned) leaders. In order for these executive leaders to pull the disparate parts together, it was identified that they require project management skills, in order to create value for their organisation. Although project management skills were not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

Osborne and Hinson (2011) argued that leaders need to create disruption, and lead their organisations to the edge of chaos, as this is where innovation and exploration take place. It was interesting to note that these executive leaders did not mention the need to create disruption, even though their respective organisations are required to be innovative.

**Cognitive Skills:** It was established that given the dynamic challenges that these leaders face, six interviewees advocated that they need contextual intelligence, whereby they understand their context and can adapt to the different situations they face, adapting to their audiences, and to work at different levels within their organisation. Kutz and Bamford-Wade (2013) argued that given the uncertainty and complex environment in which leaders operate, leaders need a competency of contextual intelligence, in which they understand the past events, current context and variables and desired future state (Kutz & Bamford-Wade, 2013).

It was identified that these leaders cannot have silo vision and require peripheral vision, whereby they understand the bigger picture, and how all the components of their organisation fit together. Although big picture thinking was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

In leading their organisation forward, it was established that an executive leader requires an ability to look ahead, and have foresight, which will impact their decisions made in the present. Although foresight was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

Noting that their context in complex, it was identified that executive leaders need to be able to think analytically, to deal with the current challenges they face. Although analytical thinking

was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

Contextual leadership was identified as key, as these leaders are required to identify problems within their current environments and be able to resolve them. Although contextual leadership was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

A competency which was only mentioned once, however, it is such a pertinent competency to have, is that of curiosity, as this stretches a leader's cognitive abilities, as they are learning daily. Although curiosity was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

Given the plethora of changes that these leaders face, it was identified that they need to think out of the box, to address the forthcoming challenges, as these challenges are dynamic and cannot be solved with their current thinking. Although thinking out of the box was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

It was found that executive leaders are required to be innovative in their thinking, to address the challenges they face. Literature states that, in order to meet the requirements of the dynamic challenges the organisations face, adaptive/entrepreneurial leadership needs to be innovative (Uhl-Bien & Arena, 2017).

In addition, further competencies which literature stated are important for leaders to have in this environment and were not mentioned by the executive leaders interviewed, are discussed below.

According to Uhl-Bien and Arena (2017) and Uhl-Bien *et al.* (2007), enabling leadership needs to enable an environment which is conducive for adaptive responses to occur through the mechanism of conflicting between agents. Uhl-Bien and Arena (2017) allude that administrative leaders need to embrace the entrepreneurial and enabling leadership perspectives and be filters for their efforts. To promote networking that will enable adaptive

responses to emerge, enabling leaders need to apply complexity thinking (Uhl-Bien & Arena (2017). Uhl-Bien and Arena (2017), Osborne and Hinson (2011) and Boal and Schultz (2007) stated that leaders need to be strategic in their endeavors within the organisation. This was further argued by Osborne and Hinson (2011), who stated that in amongst the complex environment in which leaders operate, they need to bring a sense of calm and instill confidence in the organisation. Noting that blockages do occur within organisations, Clarke (2013) argued that a leader's responsibility is to scan the environment, to identify blockages and hinderances to information flows, in order to clear these blockages.

**Management Competencies:** It was found that these executive leader's organisations are not only affected by movements in the local markets, but also movements in the global markets, and as such, it is critical for them to be knowledgeable in what is happening in local and global markets, as this does affect their respective organisation. Although market intelligence was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

Understanding one of the most important stakeholders to these organisations, namely their customer, was identified as critical to these executive leaders, as they need to keep abreast of their customer's behaviours, needs and wants. Although knowing your customer was not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

It was found that the ability to align the different parts of their organisation, in alignment with the organisations strategy, and be able to execute to achieve the strategy, is critical for the executive leader. It was further established that executive leaders need to be able to coordinate and organise their organisation's resources, toward achieving their organisation's objectives, as well as be able to create and enable a conducive working environment for their teams to positively operate in. Although these executive leaders operate in a complex and fast paced environment, they still require the ability to have a vision of what they want the organisation to be and cascade this vision throughout their organisation. Uhl-Bien *et al.* (2007) stated that administrative leadership encompasses competencies associated with internal functioning of the organisation, in which leaders are required to have competencies, in order to build a vision, plan and coordinate the organisations resources, and align and execute accordingly.

It was further established, whereby one interviewee alluded to the fact that executive leaders still require the basics of business management skills, to understand how to operate a business and understand which levers one needs to pull, in order to grow a business. Although business management skills were not explicitly stated as a requirement to operating in a CAS by literature, it was found to be a fundamental building block to these executive leaders' operating in their environment and cannot be excluded.

It was found that executive leaders need to be able to take risks in their decisions, in order continue moving their organisation forward, even though these risks may come with adverse effects. Uhl-Bien and Arena (2017) argued that enabling leaders need to be able to take risks, whilst creating and nurturing a conducive operating environment, in which ideas can emerge.

Uhl-Bien and Arena (2017) stressed that administrative leaders need to protect and facilitate the efforts made by entrepreneurial and enabling leaders, in order to embrace innovation and be adaptable to change. Uhl-Bien *et al.* (2007) further argued that administrative leaders need to be sponsors for entrepreneurial and enabling leaders' efforts. It was interesting to note that these executive leaders did not mention protectionism, facilitation or sponsorship of ideas. What was interesting to note, is that from the data analysed and observation made in the respective interviews, it seemed as though the mindset of these executive leaders was focused on their respective job description.

### 6.2.2 Conclusive Findings for Research Question 1

Based on the research findings, competencies required by executive ICT leaders to operate in their CAS, is described in Figure 10. These research findings were compared to literature, and Table 29 has been created to illustrate the comparisons. It was interesting to find that out of the 36 competencies described in literature, to being critical to fostering a CAS and leading in this complex environment (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Kutz & Bamford-Wade, 2013; Clarke, 2013; Osborne & Hinson, 2011; Kutz, 2008; Uhl-Bien *et al.*, 2007; Bennet & Bennet, 2003), 15 of these competencies were mentioned by the interviewees as being critical to operating in their environment, which are marked with an "X" in the column titled "Study Findings Support Literature" in Table 29. The other 21 competencies described in literature as being critical, were not mentioned by these interviewees and these are marked with an "X" in the column titled "Study Findings - Not Mentioned" in Table 29. There could be many reasons why these interviewees did not mention these competencies, and as such, a gap was identified, whereby these executive leaders did not mention competencies which

literature stated are critical for this environment. However, based on the research findings, seemingly these MNOs have not fully implemented a CAS within their organisation, and these executive leaders have not been trained in complexity leadership. Thus, it is concluded that the research findings partially support literature, regarding critical competencies that are required to fostering a CAS and leading in this complex environment.

**Table 29: Study Findings compared to Literature**

| Subcategory | Competency | Author | Study Findings Support Literature | Study Findings – Not Mentioned |
|---|---|---|---|---|
| Social Skills | Collaboration / Supporting shared leadership | X | X | |
| | Networking / Developing a system network | X | X | |
| | Apply tension / Foster tension | X | | X |
| | Serve as bridges | X | | X |
| | Brokerage / Become a connector | X | | X |
| | Convene dialogues | X | | X |
| | Building social capital | X | | X |
| | Supporting autocatalysis | X | X | |
| | Storytelling | X | | X |
| Personal Competencies | Flexibility | X | X | |
| | Adaptability | X | X | |
| | Challenge the status quo / Challenge yourself | X | X | |
| | Resilience / Cope with failure | X | X | |
| | Persistent and patient | X | | X |
| | Tenacious | X | | X |
| | Personally adaptive | X | X | |
| | Being a catalyst / A change agent | X | | X |
| | Risk taker | X | X | |
| | Comfortable with tension | X | | X |
| Functional Competencies | Create disruption | X | | X |
| Cognitive Skills | Conflicting | X | | X |
| | Innovative | X | X | |
| | Being filters | X | | X |

| | | | | |
|---|---|---|---|---|
| | Apply complexity thinking | X | | X |
| | Strategic thinker and keen sense of timing | X | | X |
| | Sense strategically | X | | X |
| | Identifying barriers to information flows | X | | X |
| | Contextual intelligence | X | X | |
| Management Competencies | Planning | X | X | |
| | Coordination | X | X | |
| | Build vision / Supporting shared meaning making | X | X | |
| | Protectionism | X | | X |
| | Facilitation / Accommodation | X | | X |
| | Sponsoring | X | | X |
| | Aligning and executing | X | X | |
| | Stabilise | X | | X |

**Source:** Synthesised from (Uhl-Bien & Arena, 2018, p. 98-100; Uhl-Bien & Arena, 2017, p. 9-20; Clarke, 2013, p. 139; Osborne & Hinson, 2011, p. 28-29; Kutz, 2008, p. 26-27; Uhl-Bien *et al.,* 2007, p. 298-318; Boal & Schultz, 2007)

In addition, based on the research study findings, there were additional competencies that were established as being critical to these executive ICT leaders at the MNOs, which is described in Table 30.

**Table 30: Study Findings - Additional Competencies Received**

| Subcategory | Competency | Literature | Study Findings – Additional Competencies |
|---|---|---|---|
| Social Skills | People skills | | X |
| | Communication skills | | X |
| | Listening skills | | X |
| | Soft skills | | X |
| | Coaching | | X |
| | Empathy | | X |
| Personal Competencies | Agility | | X |
| | Continual learning | | X |
| | Assertiveness | | X |
| | Know your strengths and weaknesses | | X |

| | | | |
|---|---|---|---|
| | Passion | | X |
| | Purpose driven attitude | | X |
| | Strong value system | | X |
| | Understand a leader's purpose | | X |
| Functional Competencies | Understanding technology | | X |
| | Functional competencies | | X |
| | Commercial skills | | X |
| | Hard skills | | X |
| | Leadership requires less technical skills | | X |
| | Technical skills | | X |
| | Cross functional competency | | X |
| | Experience | | X |
| | Project management skills | | X |
| | Value creator | | X |
| Cognitive Skills | Big picture thinking | | X |
| | Emotional intelligence | | X |
| | Foresight | | X |
| | Analytical skills | | X |
| | Contextual leadership | | X |
| | Curiosity | | X |
| | Think out of the box | | X |
| Management Competencies | Market intelligence | | X |
| | Need to know your customer | | X |
| | Business management skills | | X |
| | Enabling leadership | | X |
| | Organising skills | | X |

## 6.3 Discussion of Results for Research Question 2

**Research Question 2: Of the identified critical competencies, which competency is perceived to be the most important?**

The aim of research question 2, was to identify and evaluate which competency is the most important to executive ICT leaders operating in their CAS. Interview questions were posed from two different perspectives: (1) whereby the interviewees were asked to rank their stated competencies in order of importance; and (2) whereby the interviewees were asked to indicate which competency was most influential to them. The results for both these interview questions, namely 6 and 7 have been described in Figure 11.

Nordhaug and Gronhaug (1994) argued that one cannot disregard the importance of an individual's competency, as they contribute to the organisations competitiveness. In analysing the data pertaining to interview question 6, it was found that these executive leaders placed a higher emphasis on competencies associated with social skills and functional competencies subcategories, as they were referenced most by the interviewees, both having a frequency of 17. What was interesting to note, is that personal competencies and cognitive skills were referenced less frequently. Noting this finding, it was assumed that these executive leaders' priorities are polarized to working with people and knowing how to perform their specific duties, as opposed to developing their own personal competencies, such as agility and adaptability, and cognitive skills, such as contextual intelligence. In terms of specific competencies, it was found that people skills had a frequency of 7, which was ranked the highest, followed by technical skills, which had a frequency of 6. It was further assumed that these findings are as a result of the current environment that these executive leaders operate, one in which they are required to lead people and being in a technology focused business, they required to have technical skills.

However, a unique insight which was found, in which two interviewees advocated that as an executive leader, one cannot tradeoff between competencies, as they are all equally important. This was a very interesting find, as the other 11 interviewees did not consider that their competencies did not need to be ranked but thought that they needed to have a prioritized ranking. From a literature perspective, there was scant information available regarding the ranking of competencies in a CAS environment.

In analysing the data pertaining to interview question 7, it was found that these executive leaders placed a higher emphasis on competencies associated with the social skills subcategory, having a frequency of 8. Noting that this interview question, requested the interviewees to elaborate which competency was most influential to them in their development as a leader, it was established from the data, that they placed greater importance on having people skills. Regarding people skills being referenced the most in interview 7, this aligns to the data found in interview 6. Therefore, an assumption was made that these executive leaders hold the competency of people skills, highest above all their ranked competencies of importance. From a literature perspective, there was scant information available regarding the most important competency in a CAS environment.

It was interesting to observe and note in these interviews that when these questions were posed, many of the executive leaders had to take a moment to think about ranking the importance of their stated competencies, as they had not previously been required to state or rank their competencies in order of importance. As argued in literature, Nordhaug and Gronhaug (1994) noted that not many human resources fully understand their own degree of their competencies but may understand it further, if they are presented with a list of key applicable competencies to be assessed.

To conclude, the data pertaining to both interview questions pointed to people skills being the most important competency amongst these executive leaders. However, it must be noted that, according to Klein *et al.* (1991), competencies can never be static and are continuously changing, due to the nature of the changing context, and emphasized, that an organisation's portfolio of skills need to be continuously managed. Given that this study was cross sectional, a "snap shot" in time, this competency may change according to these leaders' contextual changes.

### 6.3.1 Conclusive Findings for Research Question 2

Based on the research findings, as described in Figure 10, it was found that the most important competency to these executive leaders were people skills. These findings were compared to the 36 competencies described in literature, to being critical to fostering a CAS and leading in this complex environment (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Kutz & Bamford-Wade, 2013; Clarke, 2013; Osborne & Hinson, 2011; Kutz, 2008; Uhl-Bien *et al.*, 2007; Bennet & Bennet, 2003) as described in Table 29, and it was noted that people skills was not mentioned as a critical competency in the literature reviewed. However, although the competency of people skills falls within the human resource management domain, it was found that people skills is a vital competency for executive leaders to have, in order to operate within a CAS environment. These research findings support literature, whereby Uhl-Bien and Arena (2018) stated that there is limited information in this area, and that further research is required, which Clarke (2013) further argued that further research is required to understand the competencies leaders need to possess, in order to enable their organisations to effectively operate as a CAS (Clarke, 2013).

## 6.4 Discussion of Results for Research Question 3

**Research question 3: Establish what additional competencies would executive ICT leaders need to develop in the next five years?**

The aim of research question 3, was to identify and evaluate what are perceived to be the competencies ICT leaders would need to develop in the next five years. According to Hernez-Broome and Hughes (2004), as well as Klein *et al.* (1991), leadership competencies will transform as the business's operating landscape changes. Given the complex and dynamic environment that these executive leaders operate in, this necessitated the need for this research.

The research findings have been presented in Figure 12. In comparing and analysing the results presented in Figure 12 and Figure 11 (Results of interview question 6, whereby the interviewees were asked to rank their stated competencies in order of importance), interesting insights were found. It was found that these executive leaders have placed more emphasis on developing their personal competencies, such as, becoming more adaptable to change, and being able to constantly learn, in the next five years. The assumption made in this regard was that these executive leaders are uncertain of what the future holds for them in their careers, and considering their fear of becoming obsolete, they stressed the importance of breaking the barriers of their fears, being open minded, and continually learning, in order to remain relevant.

Further to this, it was found that from a functional competencies' perspective, emphasis was also placed on developing their technical skills, due to the next wave of technological advancement, such as, artificial intelligence, Internet of Things, and machine learning. It was however interesting to note that the research findings alluded to little emphasis being placed on management competencies. The assumption made in this regard is that leadership is changing from a more top down approach, to a more collaborative approach, and emphasis for these executive leaders is placed on knowledge creation. As argued by scholars, old bureaucratic, top-down approaches to leadership models and theory, are not suited in the knowledge economy (Kutz & Bamford-Wade, 2013; Uhl-Bien *et al.,* 2007; Lichtenstein *et al.,* 2006; Osborn *et al*., 2002).

What was interesting to find is that executive leaders' perceptions of social skills would change over the next five years, as competencies associated with social skills were ranked third in terms of frequency. The assumption made in this regard is that due to the uncertainty of what is to come, given the dynamic environment, these executive leaders priorities would be

polarized towards developing personal competencies, as opposed to developing their social skills.

### 6.4.1 Conclusive Findings for Research Question 3

Based on the research findings, as described in Figure 12, it was found that due to the uncertain environment that these executive leaders operate in, and the uncertainty that this environment brings, within the next five years these executive leaders will be placing more emphasis on developing their personal competencies and functional competencies, in order to remain relevant. These research findings support literature, which states that competencies will evolve as the operating environment evolves (Hernez-Broome & Hughes, 2004; Klein *et al.*, 1991).

# CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

## 7.1 Introduction

As a result of the rapid pace of technological advancement and increased connectivity, the landscape in which Mobile Network Operators in South Africa operate, is undergoing significant change. The challenges being faced by these organisations are becoming increasingly complex and dynamic. Previous ways of leading within this environment have been challenged (Kutz & Bamford-Wade, 2013; Uhl-Bien *et al.,* 2007; Lichtenstein *et al.,* 2006; Osborn *et al.*, 2002) and an alternative leadership paradigm, called Complexity Leadership Theory (CLT) has been proposed (Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007; Lichtenstein *et al.*, 2006), which harnesses adaptive abilities through fostering a Complex Adaptive System (CAS) (Uhl-Bien *et al.*, 2007). It has been alluded to that a hierarchical system and a CAS, co-exist within the Mobile Network Operators (Sammut-Bonnici, 2015), and to create a conducive environment for a CAS, leaders require competencies that are aligned to fostering this type of environment. As such, this study sought to identify and evaluate what competencies executive ICT leaders at the Mobile Network Operators say are critical to operating in their CAS and compare the findings to what competencies literature stated are critical for a CAS.

## 7.2 Principal Findings

The following principal findings were found:

**Principal finding 1:** Based on the research findings from the study, a gap was identified, whereby the executive leaders interviewed, referenced only 15 of the 36 critical competencies that literature stated are important for a CAS, no reference was made to the other 21 important competencies, as described in Table 29. Competencies such as: apply and foster tension between agents, which is required in order to generate ideas and adaptive responses through conflicting and linking (Uhl-Bien & Arena, 2017); and using brokerage between networks to facilitate the flow of information (Uhl-Bien & Arena, 2017), to name a few, was not mentioned by these executive leaders. This leads to the assumption that CAS dynamics may not be fully implemented within the MNOs. However, there were additional critical competencies referenced by these executive leaders, of which they stated are important, as described in Table 30.

**Principal finding 2:** Research findings concluded that people skills, were perceived to be the most important competency for these executive leaders, as they are a leader of people within their respective organisations, who employ thousands of employees. And as such, they have a responsibility towards their team members, they need to embrace diversity, and are required to engage with their team members on different levels, in order to get their teams to collaborate and work toward achieving their organisational objectives. Although people skills fall within the human resources domain, one cannot negate the importance of this competency within a CAS environment.

**Principal finding 3:** Although the MNOs are operating in the ICT industry and their organisations have been built on technology, it was found that there were conflicting views between executive leaders, with regards to a leader's technical skills. On the one hand, an argument was made indicating that an executive leaders' skills are of less importance, whilst on the other, an argument was made indicating that an executive leaders' technical skill is of utmost importance. However, research findings from research question 3, concluded that these executive leaders will be placing more emphasis on developing the competency of adaptability and their technical skills over the next five years, due to the pace of technological advancements and uncertainty of how these advancements will impact their jobs, in essence, they need to remain relevant.

**Principal finding 4:** Given the opportunity for these executive leaders to rank their stated competencies in order of importance, a unique insight was found, whereby two interviewees advocated that as an executive leader, one cannot tradeoff between competencies. It was stressed that all competencies in an executive leader's arsenal are equally important. In addition, when ranked in order of importance, competencies associated with social skills were ranked first, functional competencies were ranked second, personal competencies were ranked third and cognitive skills was ranked fourth. However, when asked to elaborate which competencies would executive leaders need to develop in the next five years, very interesting insights were found. These executive leaders placed more emphasis on developing their personal competencies and functional competencies, over that of social skills. This was taken in the light that these executive leaders were uncertain of what the future holds and will need to equip themselves with the relevant competencies to remain relevant within their organisations. Interestingly though, very little emphasis was placed on management competencies, which was seen in the light that from a practical sense, leadership within these organisations is changing from a top down approach to a more collaborative approach.

**Principal finding 5:** Based on the research findings for interview question 10, it was found that these organisations do have talent management and development programs. However, it was unclear if these programs have been developed with complexity dynamics in mind. It was further stated by one interviewee that their talent management and development programs are treated as check box exercises.

## 7.3 Implications for Management

Based on the research findings, a gap was identified between the competencies that executive ICT leaders at the Mobile Network Operators stated are important and what competencies literature stated are important in fostering a CAS and leading in these times of complexity. And as alluded by Sammut-Bonnici (2015), MNO's are seen to be operating a CAS. The following recommendations have been made for management:

- Management to consider assessing and analysing these research findings and compare these findings against their current leadership competency models, which are used for training purposes.
- Management to consider assessing and analysing these research findings with the intention of incorporating these findings into their talent management and development programs, for future leader development.
- Management to consider these research findings and review their current leadership competencies, with the view of enhancing the effectiveness of their CAS.

## 7.4 Limitations of Research

As previously mentioned, limitations are inherent in all methods (Hofstee, 2006). Multiple biases may occur during qualitative research, as it is subjective (Saunders *et al.*, 2012; Zikmund *et al.,* 2013). The following are further limitations that were identified:

- Due to a small sample size selected, only the views and opinions of a limited number of interviewees were recorded and may not be representative of the views and opinions of other individuals.
- Geographical bias may have been introduced in the interviewee's responses, as the research was conducted in one geographical area, and only on a small sample of interviewees.

- With the study being cross-sectional “snap-shot” in nature, the views and opinions of the interviewees were gathered at that point in time, of which their views and opinions may change over time.
- With the proposed study being limited to Mobile Network Operators operating in the ICT industry, the views and opinions obtained from the interviewees in this industry, may not be representative of those in other industries.

## 7.5 Suggestions for future research

According to Uhl-Bien and Arena (2018), research in the leadership field is urgently required, specifically on how to develop people’s abilities which are required, in order to lead in organisations that are adaptive, and it was noted that there is scant information in this area. Clarke (2013) further argued that more research is required into understanding what competencies leaders require, in order to operate in their CAS. These research findings are notional, and it is proposed that further research be conducted in this area. Herewith are suggestions regarding future research:

- Noting that a qualitative research study was conducted, a recommendation for future research would be to conduct this study using a quantitative research method.
- Regarding competencies being aligned to an organisation’s operating environment, it would be beneficial to conduct a study, within the MNOs, with the output being a leadership competency model geared to operating in their CAS.
- Given the three entwined leadership roles that Complexity Leadership Theory describes, namely: administrative/operational; entrepreneurial/adaptive; and enabling (Uhl-Bien & Arena, 2018; Uhl-Bien & Arena, 2017; Uhl-Bien *et al.*, 2007), further research could be done to understand a leader’s ambidexterity between these roles, considering that leaders need to enable a CAS environment, as well as deliver on performance and results.
- Finally, future research could be to take these research findings and test it in other industries.

## 7.6 Conclusion

The role of executive leaders at the Mobile Network Operators is becoming more complex and their sets of competencies required to operate in their environment needs to expand, to include competencies that are aligned to fostering a CAS and to lead in these times of complexity. In

order to survive the increasingly complex environment, their organisations which are hierarchal, will need to find a balance between their hierarchical system and their CAS. Leadership within these organisations need to be developed and trained to lead in a CAS. By fostering a CAS, enabling leadership is by virtue becoming an enabler for the organisation to become more adaptable through collaboration between its agents. However, these leadership competencies will need to be developed at a faster rate, due to the pace of the environmental changes that these organisations are exposed to. And these leadership competencies will evolve as the environment in which the MNOs operate in evolves.

Given that the study aimed to identify and evaluate the competencies that executive ICT leaders require to operate in their CAS, based on the research findings, and the gap identified, it is recommended that these organisations reassess their leadership competencies to include the pertinent competencies required for a CAS, as alluded to in literature.

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# 9. APPENDICES

## Appendix 1: Invitation to participate in Research Study

Dear _____

Thank you for taking my call.

As discussed, I am a student at the Gordon Institute of Business Science and I am currently performing compulsory research as part of the Master of Business Administration (MBA) degree. My research study is titled “Critical competencies of executive ICT leaders at MNOs in South Africa”.

Based on your present role within your organisation, I believe that you have the necessary insights within this sphere, which will assist me with my research study. The interview will be a semi-structured, in-depth interview, which should last about an hour. I plan to conduct interviews during July 2018. I have attached a copy of the letter of consent, which would need to be completed prior to the interview taking place.

All information obtained from the interview, and your identity, will be kept confidential during and post the research study. All data will be reported without identifiers.

The research questions I aim to answer, are as follows:

Research Question 1: Given the environmental dynamism in the ICT industry, what critical competencies are required by executive ICT leaders, to be efficient and effective?

Research Question 2: What competencies are considered to be the most important to leader development in the ICT industry?

Research Question 3: Given the environmental dynamism in the ICT industry, what critical competencies would executive ICT leaders need to develop in the next five years?

Please could you confirm your agreement to participate in the interview, and kindly indicate a suitable date and time, at your earliest convenience for the interview to be conducted.

Your Sincerely
Dominic Smit
Email: 17392269@mygibs.co.za
Phone: +27 83 298 9513

## Appendix 2: Participant Consent Form

### Consent Form for Research Project

### Topic: Critical competencies of executive ICT leaders at MNOs in South Africa

Dear Participant

I am currently a student at the Gordon Institute of Business Science, which is the business school of the University of Pretoria.

I am currently conducting research on the critical competencies that are required by the executive ICT leaders within the Mobile Network Operator space in South Africa, in order to be efficient and effective within their respective roles. Furthermore, I am trying to find out which of these competencies are more important to ICT leader development and what competencies ICT leaders would need to develop within the next five years, in the Mobile Network Operator space in South Africa.

The duration of 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, however it is voluntary, and you may choose not to be recorded. All information obtained from the interview, and your identity, will be kept confidential during and post the research study. All data will be reported without identifiers.

If you have any concerns regarding the research study, please contact myself or my supervisor Dr. Dorothy Ndletyana.

Researcher name: Dominic Smit

Email: 17392269@mygibs.co.za
Phone: +27 83 298 9513

Research Supervisor: Dr. Dorothy Ndletyana

Email: NdletyanaD@gibs.co.za
Phone: +27 82 378 5769

Signature of participant: _____

Date: _____

Signature of researcher: _____

Date: _____

## Appendix 3: Interview Guide

| Research Questions | Interview Questions |
|---|---|
| | 1. From your point of view, how would you define and describe the ICT industry? |
| | 2. How important is the ICT industry, specifically Mobile Network Operators to people, organisations and the economy in general? |
| | 3. From your experience, how important is executive leadership within the ICT industry? |
| **Research Question 1:**<br>What are the critical competencies required by executive ICT leaders to succeed in their CAS? | 4. What is your understanding of the concept of competencies? |
| | 5. From your experience, what competencies are required by executive ICT leaders? |
| **Research Question 2:**<br>Of the identified critical competencies, which competency is perceived to be the most important? | 6. How would you rank these competencies in order of importance? |
| | 7. Which competency do you consider to be most influential to your development as a leader? |
| | 8. Why do you consider this competency to be most influential? |
| **Research Question 3:**<br>What additional competencies would executive ICT leaders need to develop in the next five years? | 9. From your point of view, what additional competencies would executive ICT leaders need to develop in the next five years? |
| | 10. Internally, how is your organisation preparing and developing future executive ICT leaders? |

## Appendix 4: Ethical Clearance

Gordon Institute of Business Science
University of Pretoria

28 June 2018

Smit Dominic

Dear Dominic

*Please be advised that your application for Ethical Clearance has been approved.*

*You are therefore allowed to continue collecting your data.*

*Please note that approval is granted based on the methodology and research instruments provided in the application. If there is any deviation change or addition to the research method or tools, a supplementary application for approval must be obtained*

*We wish you everything of the best for the rest of the project.*

*Kind Regards*

GIBS MBA Research Ethical Clearance Committee

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## Appendix 5: Signed Letter of Confidentiality for Transcription Services

Date: 07/11/2018

**Re: Confidentiality of Transcription Services**

I ROBYN ERIN SMIT, hereby agree to keep any information that I may have come into contact with, whilst assisting Dominic Smit (Student Number 17392269) with transcription services, strictly confidential.

Date: 7/11/2018

Signature: RSmit