

**KNOWLEDGE MANAGEMENT SYSTEMS IMPLEMENTATION IN SELECTED  
MOBILE TELECOMMUNICATION COMPANIES IN NAMIBIA**

BY

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## ABSTRACT

Organisational knowledge management systems (KMS) garner global attention in organisational environments for organisational knowledge management (KM) practices. Organisations are grappling with the best ways to manage organisational knowledge (OK) to foster innovation and increase organisational competitiveness. Organisational KMS enable critical processes such as knowledge acquisition, creation, transfer, sharing, dissemination, classification, identification, and capture within an organisation to foster continuous innovation for competitive advantage. Mobile telecommunication (MT) companies in Namibia must therefore recognise that the success of their organisational KMS implementation contributes significantly to organisational KM practices that can enhance employee and organisational performance.

The study explored the current state of organisational KMS implementation in selected MT companies in Namibia. The study used the technology organisation environment (TOE) and the socialisation externalisation contribution and internalisation (SECI) theories to aid in conceptualising the framework of the study. The study used a mixed-method approach via a convergent parallel design.

The sample of the study was made up of 329 employees from two selected MT companies in Namibia. Twenty interviews and document analysis were employed in the qualitative method. On the other hand, the survey was conducted under a quantitative method. Purposive sampling was used to select qualitative participants and documents. Three hundred and nine respondents for the quantitative phase were identified using proportionate simple random selection under probability sampling, and the response rate was 57%. The Statistical Package for the Social Sciences (SPSS) 22.0 was utilised to analyse quantitative data and generate descriptive statistics in the form of tables and graphs. ATLAS.ti 22 was utilised to extract, categorize, and link data segments from interviews with eleven participants and documents to discover patterns and themes.

The study discovered that organisational KMS for KM practices are less likely to succeed in the absence of a KM strategy. Furthermore, the results suggest that infrastructure, employee attitudes, and manager support all underscore the critical nature of successfully deploying an organisational KMS for KM practices. The study

developed a framework to assist MT companies, KM managers, and other organisations interested in adopting and adapting organisational KMS, particularly in efficiently building a successful organisational KMS.

**Key terms:** knowledge-based society; organisational knowledge management; organisational knowledge management systems; organisational knowledge; information and communications technology; technology organisation environment; mobile telecommunication companies; tacit organisational knowledge; explicit organisational knowledge; knowledge management strategy.

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**“And whatever you do, whether in word or deed, do it all in the name of the Lord Jesus, giving thanks to God the Father through him”  
(Colossians 3:17).**

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## **DEDICATION**

This study is dedicated to

My wife Njahi Nchindo-Mubuyaeta

To Neo, Maria “Katu ka Mulimu”, Kongwa, Andrew and Mishake - all this ought to be an inspiration to seek greater heights in life,

...and to all the women out there who, despite living in a patriarchal society, are doing everything they can for their children's education. Indeed, “She'll invest in her children, in their education, health care and basic needs. The impact of a woman's role in the economy benefits society at large.” - Andrea Jung

## DECLARATION

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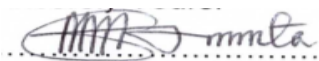
**Degree:** Doctor of Philosophy and Literature in Information Science

**Knowledge management systems implementation in selected mobile telecommunication companies in Namibia**

I declare that the above thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.



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SIGNATURE

15 JANUARY 2022

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DATE

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## LIST OF ABBREVIATIONS

CA	Cronbach Alpha
CoPS	Community of Practice System
KBS	Knowledge-based society
KM	knowledge management
KMS	Knowledge management systems
OK	Organisational knowledge
ICT	Information and Communications Technology
EDM	Electronic Document Management
EDRMS	Electronic Document Record Management System
GSWA	Germany South West Africa
KMPS`	Knowledge map systems
EKWS	Expert Knowledge Worker Systems
TOE	Technology Organisation Environment
MTC	Mobile Telecommunication Companies
MMR	Mixed Methods Research
TOK	Tacit organisational knowledge
EOK	Explicit organisational knowledge
KMS	Knowledge-Management Strategy
SECI	Socialisation, Externalisation, Combination and Internalisation
KMP	Knowledge management practices
KMSI	Knowledge Management Systems Infrastructure
KM Strategy	Knowledge Management Strategy
CMS	Content Management Systems
OKMS	Organisational Knowledge Map Systems

OKEP	Organisational Knowledge Electronic Portal
OTPS	Online Transaction Processing Systems
DSS	Decision Support Systems
CoPS	Community of Practice Systems
KGS	Knowledge-Groupware Systems
ODMS	Organisational Data Mining Systems
DMS	Database Management Systems
UNISA	University of South Africa

## CHAPTER ONE: INTRODUCTION AND BACKGROUND

### 1.1 Introduction

In today's knowledge-based society (KBS), organisational knowledge management systems (KMS) continue to attract attention as organisations are concerned about how best to enhance knowledge management (KM) for organisational excellence. In addition, information, and organisational knowledge (OK) is viewed as a critical advantage for creating organisational value in an organisation in KBS. According to Al-Khouri (2014) and Abubakar, Elrehail, Alatailat and Elci (2019), the competitive advantage and decision-making skills of organisations are largely reliant on their ability to handle information and OK effectively. In light of that, Abadi, Agrawal and Ailamaki (2013) and Ekambaram, Sørensen, Bull-Berg and Olsson (2018) argue that information and OK within an organisation bring an unprecedented scale to KM researchers, managers and organisations to radically rethink existing solutions to the successful management of OK. In an effort to deal with this new contest, organisations look at technologies to assist with the management of OK as an asset to attain a competitive advantage. Becerra-Fernandez and Sabherwal (2015), Kianto, Hussinki, Vanhala and Nisula (2018), Rhem (2017), Tounkara (2019) and Ngulube (2019), assert that the KM approach has come out as a source of firm heterogeneity which underlies competitive advantage, thereby improving their performance. From an organisational KMS perspective, the organisational KMS method underpins an option of OK systems practicality to drive KM undertakings from an organisational KMS viewpoint (Tounkara 2019:226).

Organisational KMS constitute a crucial component of information and communications technology (ICT) systems which are championed and utilised to control OK in an organisation (Ekambaram *et al* 2018; Tounkara 2019; Yee, Tan and Thurasamy 2019; Ullah 2020). Organisational KMS use diverse systems and fairly distinct technologies that could come under their umbrella of electronic document management (EDM), OK map systems (KMS), OK electronic portal (KP), expert knowledge worker systems (EKWS) and collaborative and classification tools/instruments for KM practice (Tounkara 2019; Yee *et al* 2019; Ullah 2020).

Successful implementation of the aforementioned systems requires a supporting technical, organisational and environmental culture and management that fosters and

encourages continuous innovation and improvement of management decisions (Awa, Ukoha and Igwe 2017; Yee *et al* 2019). In this light, knowledge management systems in organisations must be cutting-edge in terms of technology, organisational culture and environmental stewardship. The strategy, infrastructure, support from senior management and employee perception of organisational KMS, all contribute to the effective administration of OK frameworks through organisational KMS. As a consequence, the organisation must evaluate the implementation or viability of organisational KMS on these dimensions in order to monitor their performance and to assist the organisation, managers and KM researchers in designing and implementing effective programmes (Awa, Ukoha and Igwe 2017; Yee *et al* 2019).

Based on the above viewpoints, organisational KMS are understood to expedite and precipitate KM processes, as suggested by Dei (2017), Zhurba (2019) and Ullah (2020), for organisations including mobile telecommunication (MT) companies to reduce challenges concerning OK loss and retention. It is suggested in this study that it is crucial to understand the multiple contexts in relation to organisational KMS strategy, infrastructure, management support and employees, as well as enablers experienced by MT companies in Namibia in relation to the adoption, architecture, and implementation of optimal organisational KMS for KM, since these tend to weaken the competitive advantage of the company if they are not handled appropriately (Toukara 2019). The effective implementation of these factors demonstrate that managing OK with organisational KMS is important to the survival or competitive innovation of any organisation including MT companies in Namibia.

Ekambaram *et al* (2018) and Zhurba (2019) claim that the exploitation of organisational KM technologies is still not well understood generally. In the same vein, Xu and Quaddus (2011), Wang and Lai (2014) and Toukara (2019), assert that there is a dearth of literature on matters linked to KMS in many organisations. This study, therefore, becomes critical, especially when one considers that managing OK is critical in many organisations, inclusive of MT companies in Namibia and that the timely progression of organisational KM depends on KMS to transmit and store OK via ICT.

Usman and Ahmad (2012) and Chigada and Ngulube (2015) contend that an organisation's KM ought to focus on creating and enabling an organisational environment that permits or makes innovation out of OK. These authors further argue

that it is important to connect employees, go beyond best practices and design, acquire, store, transfer, retrieve, share and retain OK. Managing OK this way necessitates investigation within the Namibian context, in particular in relation to organisational KMS. Although literature dealing with KM in other parts of the world exists, there is a dearth of understanding and application of KMS, especially on how they allow organisations to identify, use, activate and elevate policies and strategies (Tounkara 2019; Eletter, Refae and Kaba 2020). Furthermore, organisational KM investigation has managed to help to substantiate the influence of environmental principles on organisations' KM projects and gained insight into some of the fundamental ideas.

There seems to be a lack of frameworks and assessment on how particular kinds of organisational dimensions could connect to KM technological innovation and associated consequences (Tounkara 2019). This mixed-method study was aimed at closing that gap by investigating organisational KMS implementation in selected MT companies in Namibia. The mixture of methodologies assisted the researcher to comprehend the complexity and multiplicity of organisational KMS for KM as well as avoiding the trap of painting KMS with one big brush in the form of a mono-method when there are other tools, as suggested by Ngulube (2020b:3).

## **1.2 Context of the Study**

Empirical research has shown that there are different methods that a business can record success in today's global and competitive world (Albassam 2019). Studies conducted in the early 1980s revealed that senior managers were assessed on their ability to perform and produce positive results as well as to show how they managed companies to remain competitive during some turbulent economic times (Rhem 2017). However, in a KBS where competition is getting stiffer, and sustainability is becoming a significant issue, different criteria that encompass the ability to classify, nurture and exploit essential abilities such as OK to induce innovation turn out to be critical for organisations (Rhem 2017; Albassam 2019). This study was contextually grounded to advance the importance of organisational KMS as an essential element of managing OK in MT companies in Namibia.

Namibia is a member of the Southern African Development Community (SADC) and the African Union (AU). As such, Namibia ought to appreciate and recognise the



importance of organisational KMS, like other member countries in SADC and the AU. In this line, the SADC secretariat acknowledges organisational KMS as key thematic areas of focus to leverage knowledge within and across the organisation (SADC 2019). For example, one of the strategic objectives of the Regional Awareness and Communication Strategy for the Water Sector entails the development of a meta-database for KM to enhance communication, information and KMS (SADC 2008; 2019).

Like many African countries, Namibia's history in the telecommunications industry stretches as far back as the colonisation era. As in most African nations, in Namibia, ICT results are skewed and challenging to measure (Rhem 2017). During colonialism, Africa experienced poor investment in ICT infrastructure. As a result, Africa lags in ICT development and also remains glued to western-type bureaucracies, which are counter-productive and impervious to change (Rhem 2017; Albassam 2021).

In the 1990s, following the attainment of Namibia's independence, the government introduced diverse ICT developmental programmes to address the legacy of colonial discrepancies relating to access and the use of ICT for development. The government of Namibia drew up a developmental road map, Vision 2030, which consists of several objectives on how to develop Namibia into an industrialised KMS/economy by the year 2030. One of its objectives is to advance up-to-date telecommunications to leverage OK and technology for people's use (NPC 2020; Mchombu 2021).

According to Mchombu (2021), Namibia's implementation of KM standards in Vision 2030 has moved the country to the forefront of the field. Similarly, in an address to the second Public Forum on Namibia's Urban Future in 2015, the then Vice-Chancellor of the Namibia University of Science and Technology (NUST), Professor Tjama Tjivikua, echoed similar views when he said Namibian companies "have an obligation to play a critical role in sustainable development by creating a critical and tangible link between knowledge generation and transfer of knowledge in the society" (NUST 2015). The then Minister of Economic Planning, Honourable Tom Alwendo, stated that the Namibian government would remain devoted to investing in infrastructure to allow the private sector to conduct its business cost-effectively (NPC 2017). This shows that the government of the Republic of Namibia and the private sector are both fully cognisant of the importance of ICT and KM for development. Therefore, understanding the

contribution of KMS implementation to KM initiatives in MT companies in Namibia is crucial. Thus, driven by the understanding that KMS implementation is important or acts as an enabler or conduit to successful KM, challenges that hinder their effective and efficient implementation in MT companies in Namibia should be investigated.

To the extent that organisational KMS are used by MT companies in Namibia, Dei (2017) suggests that it will provide them with the means that would probably be able to salvage the OK situation at hand. Iskandar, Jambak Kosala and Prabowo (2017:70) observe that MT companies will be swift to make decisions on emerging issues based on established OK, as well as to generate new OK, primarily through online training/learning processes, where such OK embodies a realistic and valued method of resolving organisational difficulties. Sayyadi (2020) argues that organisations' decisions are multifaceted and are predominantly OK-demanding. As a result, they would benefit from the organisational KMS in terms of timely decision-making. In addition, it will help to address the clear interests of individual employees by getting the right OK across the network to accomplish the mission of MT companies (Chandna and Lusco 2018; Ghasemi and Valmohammadi 2018).

### **1.3 Motivation of the Study**

The researcher is a specialist in the field of information and KM. As a result, several factors motivated this study, including the evident awareness by a substantial number of literature in the developed world that most organisations' success depends on conscientious KM, in particular organisational KMS. However, a substantial portion of the KM literature in Namibia and Africa, in general, is devoid of contributions from the private sector, specifically MT companies, to organisational KMS. In that light, priority ought to be given to the current state of affairs, especially organisational KMS in the KBS. Motivated by this conviction that all organisations must be built on the foundation of scientifically supported, sustained competitive advantage to achieve long-term growth, the researcher saw this as a unique vantage point from which to explore organisational KMS-related problems in MT companies in Namibia and develop an implementation framework.

Driven from the personal experience gained through interactions with MT employees in Namibia and the examination of literature, the researcher discovered a dearth of literature on organisational KMS implementation frameworks for KM practice in

Namibia. Since private and public organisations are founded on learning progressions that foster growth and creativity in KBS, incorporating KM principles and practices using technology into conceptual explanations for national developmental programmes is important.

In terms of practical and personal implications, the study was thought to have the potential to provide useful and logical conclusions to KM researchers, policymakers in private and public organisations in Namibia and beyond who are pursuing organisational KMS for KM practice to promote innovation and competitive advantage. On a personal level, the researcher hopes that the analysis will assist him and other KM researchers and policymakers in improving or strengthening their research abilities, in particular, mixed-method research. It will provide a realistic theoretical perspective influenced by a mixed-method conclusion to help them gain a deeper understanding of KMS for KM.

#### **1.4 Conceptual Framework**

A conceptual framework covers the concepts that light up a study or research plan (Ngulube 2018, 2020b). These principles are sometimes illustrated diagrammatically or are intended to demonstrate a relationship in order to guide the investigation in terms of data collection and analysis (Ngulube 2018:9). Ravitch and Riggan (2016:30) show that the conceptual framework, which includes the researcher's interests and goals, personality and reflexivity, subject analysis and methodological constructs, serves as the study's foundational components, with the literature review serving as the primary mechanism through which all of these components are formed into a coherent and persuasive picture. In this vein, Nieswiadomy and Baily (2018:115) argue that a conceptual structure aids the researcher in identifying study variables, describing them and explaining the relationship between concepts through references to previous research. As suggested by Ngulube (2020a, 2020b), the researcher constructed a conceptual structure based on two theories, literature and background experience. The first theory is Tornatzky and Fleischer's (1990) Technology Organisation Environment (TOE) paradigm, and the second is Nonaka and Takeuchi's OK conversion theory (1995). According to Ngulube (2018), organising ideas from a variety of theories provides direction for the study. Thus, under Theory one (TOE), the study makes use of (selected) concepts such as technology and organisation, while under Theory two (SECI), the study makes use of socialisation, externalisation,

combination and internalisation. These structures tended to encourage and promote a detailed understanding of the study's organisational KMS implementation in MT companies in Namibia.

Following a review of the literature and theories on organisational KM, specifically organisational KMS, this study developed a systematic exploration framework (explained in section 3.4), based on constructs such as organisational KMS strategies, infrastructure, senior management support, employee perceptions and enablers to investigate organisational KMS. These constructs were interpreted as encircling core elements that paint a simple picture of the MT companies' organisational KMS implementation in Namibia. Additionally, as suggested by Adom, Hussein, and Agyem (2018), a conceptual framework aided in the classification and development of a worldview for organisational KMS implementation in selected MT companies in Namibia and developed a well-founded arrangement for this research.

### **1.5 Statement of the Problem**

Most industries in a KBS are knowledge intensive (Ekambaram *et al* 2018; Tounkara 2019; Ullah 2020). Their success partly depends on organisational KMS (Yuan, Nembhard, and Kane 2020; Ullah 2020). Organisational KMS are important because they facilitate the practice of organisational KM practice. Despite this global trend, little is known about how Namibian MT companies are using organisational KMS to improve or strengthen OK. If MT companies do not use organisational KMS to handle their OK, they risk losing both their innovativeness and competitive edge, as well as their ability to increase employee efficiency, all of which are critical drivers in a KBS. This contextual disengagement between Namibian MT companies and the application of organisational KM, more specifically, KMS, exposes a pragmatic as well as an abstract challenge, necessitating an analysis of organisational KM, in particular the implementation of KMS in selected Namibian MT companies.

Depending on the organisation, there are several unparalleled contexts for organisational KMS. According to Kianto *et al* (2018), Rhem (2017), Santoro, Vrontis, Thrassou and Dezi (2018), Ekambaram *et al* (2018), Tounkara (2019), Ullah (2020), Pinteri (2020) and Ramjeawon and Rowley (2020), these challenges are frequently dependent on a variety of factors, including organisational culture, structure, and management. Most of these studies on organisational KMS have been conducted in

the United States, Asia and the Middle East, with a smaller number conducted in Africa. Although these studies have been undertaken in order to build organisational standards and frameworks for organisational KMS, the nature of practice in Namibian MT companies is not yet established. Additionally, these studies seem to be based on partial findings from quantitative or qualitative approaches, rather than a mixed-methods approach to organisational KMS implementation in MT companies, especially in Namibia.

However, even though organisational KMS could be implemented by MT companies in Namibia, there could be related challenges with its implementation in terms of creation, sharing, processing, classification of OK, infrastructure, employee recognition and management support as articulated by Dei (2017), Zhurba (2019) and Ullah (2020), as well as the lack of clear or observable benefits or development of these applications (Ncoyini and Cilliers 2016; Sayyadi 2020). Scholars mentioned above express concern about the need to establish an appropriate methodology for organisational KMS implementation to achieve competitive advantage.

The absence of a conceptual framework for adopting an organisational KMS may also have a number of negative implications for effective KM practices in MT companies, particularly in Namibia. These inferences could be attributed to KMS strategies, infrastructure, senior management support, employee expectations and enablers to KMS implementation. As a result, this study fills a gap in terms of investigating how organisational KMS implementation in relation to problems regarding the success or failure of organisational KMS for KM activities in MT companies in Namibia.

The study of organisational KMS implementation in selected Namibian MT companies could be used to address some of the current challenges faced by MT companies in terms of management, security and timely access to OK capital. The study developed an implementation framework for MT companies in Namibia to incorporate organisational KMS for KM practice correctly and productively. Hence, this mixed-method study investigated organisational KMS implementation in selected MT companies in Namibia.

## 1.6 Purpose of the Study

The purpose of this mixed-methods study was to investigate the implementation of organisational KMS in selected MT companies in Namibia in order to develop a framework for organisational KMS implementation.

## 1.7 Objectives of the Study

Given the purpose of this study stated above, the study sought to achieve the following objectives:

1. To establish the strategies implemented for organisational KMS in MT companies in Namibia;
2. To establish organisational KMS infrastructure in the MT companies in Namibia;
3. To assess the level of support by senior managers towards organisational KMS in MT companies in Namibia;
4. To evaluate the perception of employees towards organisational KMS at MT companies in Namibia ;
5. To examine challenges of organisational KMS in MT companies in Namibia; and
6. To develop a framework on how to successfully implement organisational KMS in MT companies in Namibia.

**Table 1: Research Dashboard**

Objective	Research Question	Theories/ Models	Methodologies	Data Collection Methods
To establish the strategies implemented for organisational KMS in MT companies in Namibia	What are the strategies that guide KM initiatives, in particular, KMS in MT companies in Namibia?	Technology Organisation Environment (TOE) framework (institutional regulation)	Qualitative and qualitative methods	Document review (Policies/strategies) and interviews (senior managers)
To establish KMS infrastructure in the MT companies in Namibia	What infrastructure is essential for KMS in MT companies in Namibia?	Technology Organisation Environment (TOE) framework (technology support infrastructure)	Qualitative and qualitative methods	Interviews (senior managers)
To assess the level of support by senior managers	What are the strategies or methodologies employed by	Technology Organisation Environment (TOE)	Qualitative and qualitative methods	Questionnaires (open and close-ended questions); information technology practitioners

towards KMS in MT companies in Namibia	senior managers to support KMS implementation in MT companies in Namibia?	framework (technology support infrastructure, organisation)		and administrative clerks and interviews (senior managers)
To examine challenges organisational KMS in MT companies in Namibia	What are the barriers and enablers to organisational KMSs in MT companies in Namibia?	TOE framework (Technology Support Infrastructure, organisation and government/institutional regulation) and SECI model (socialisation/ tacit, Explicit/ eternalisation, Tacit/ internalisation)	Qualitative and quantitative methods	Questionnaires (open and close-ended questions); information technology practitioners and administrative clerks and Interviews (senior managers)
To evaluate the perception of employees towards the usability of KMS at the MT companies in Namibia.	What are the perceptions of employees using KMS for managing knowledge at the MT companies in Namibia?	TOE framework (Technology Support Infrastructure and organisation) and SECI model (socialisation/ tacit, Explicit/ eternalisation, Tacit/ internalisation)	Qualitative and quantitative methods	Questionnaires (open and close-ended questions); information technology practitioners and administrative clerks and interviews (senior managers)
Develop a framework on how to successfully implement KMS in MT companies in Namibia	What framework can be proposed to explain the implementation of KMS for MT companies in Namibia?	TOE Technology Support Infrastructure, Organisation and SECI model (socialisation/ tacit, Explicit/ eternalisation, Tacit/ internalisation, tacit/explicit combination)	Qualitative method	Existent relevant literature, questionnaires (open and close-ended questions); information technology practitioners and administrative clerks and Interviews (senior managers)

## 1.8 Justification of the Study

This study aimed to contribute to the body of knowledge in the field of organisational KM, specifically organisational KMS. Additionally, the study was designed to improve corporate practices, strategy and services as suggested by Creswell and Creswell (2018). Given that Namibia is a developing country with ongoing development programmes, there is great need of managing OK for the KBS economy by 2030 (NPC 2020). To this end, and to the extent of the literature relevant, no study has been conducted in Namibia that focused completely on organisational KMS for KM practice in MT companies. This study, therefore, contributes significantly to the advancement of the national vision by offering insight into the implementation of organisational KMS for KM in support of national progress in KBS. To be successful, organisational KMS for KM practice must be thoroughly incorporated into the organisation's strategic policies or plans. Additionally, this research was intended to serve as a reference for organisational KMS experts, administrators, planners and organisations seeking information on how to build responsive KM policies, strategies, plans and frameworks for the effective implementation of KMS in MT enterprises (Chandna and Lusco 2018; Ghasemi and Valmohammadi 2018).

The findings of this study may contribute to the design or development of an implementation system for the successful adoption, use and practice of organisational KMS for KM in MT companies in Namibia, as suggested by Santoro, Vrontis, Thrassou and Dezi (2018); and Tounkara (2019); as well as Ekambaram *et al* (2018). Additionally, the results were thought to provide organisations and knowledge managers with the necessary insights into the organisational KMS system that enables its implementation and adoption (Tounkara 2019).

Additionally, the findings of this study will provide organisations with a better understanding of what is required to ensure the efficient and effective use of organisational KMS tools and infrastructure designed to support organisational KM initiatives in Namibian MT companies. As this study utilised mixed methods research (MMR), it has the potential to increase understanding of the critical nature of organisational KMS for good KM by employing the double brush, as proposed by Ngulube (2020b), resulting in the effectiveness of organisational KMS for KM practise in Namibian MT companies.



## 1.9 Originality of the Study

The process of explaining originality in PhD theses is focused on various angles. Philips and Pugh (2010), Edwards (2014) as well as Gill and Dolan (2015) mention that the originality of the thesis is important and based on many bits and parts such as:

1. When research employs new tools, techniques and procedures;
2. When research explores the unknown/unexplored;
3. When research untangles the unanticipated, obtaining original data and possible publishable results;
4. When a researcher employs a range of unique interpretations and combinations,
5. Putting in writing for the first time a major piece of new knowledge
6. When a researcher adds a single new approach, observation, or outcome to a competent but otherwise unoriginal piece of study;
7. Possessing several creative concepts, methodologies, and interpretations, all of which were executed by others under the supervision of the postgraduate; and,
8. When the researcher demonstrates originality in verifying someone else's concept.

Having stated the above, the originality of this study on organisational KMS implementation in selected MT companies in Namibia is focused on the compilation of original data using interviews, questionnaires and document analysis. Reference is made to Edwards (2014) and Gill and Dolan (2015) who suggest that originality depends on the collection of data, analysis and interpretation process. The scholars point out where the discrepancy as established by the researcher is filled. According to the researcher's knowledge, no studies have been undertaken on organisational KMS implementation in selected MT companies in Namibia using a mixed-method line of analysis. The MM study of organisational KMS in selected MT companies in Namibia was, therefore, necessary, original in that line and contributes to a strong image of the status quo of organisational KMS for KM practice in the private sector. This study could be replicated to other sectors for the advancement of organisational KMS for KM practice, as suggested by Gill and Dolan (2015). In addition, the findings may have substantial theoretical and practical implications (Edwards 2014) and may provide or serve as a valuable component for strategic organisations, such as the private and public sector in Namibia and beyond, which have an interest in

organisational KMS in general and organisational KM in particular. This mixed-method research, therefore, studied the organisational KMS implementation in selected MT companies in Namibia.

### **1.10 Definition of Keywords**

According to Maluleka (2017) and Creswell and Creswell (2018), the definition of key terms specifically assists in making a distinction between a scientific proposition and everyday language by ostensibly stripping the multiplicity of meaning for precision to attract the reader's interest and concerns as the researcher steers the reader's attention to specific ones. This segment provides terms and ideas/theory/concepts that acted as drivers for this study to give the reader an understanding of what to expect from this study.

***Organisational knowledge management:*** This is the understanding and discovery of OK; capturing and acquiring OK from a diversity of sources; selecting, filtering and classifying existing OK; storing and saving OK; designing OK ontologies; adapting and/or creating new OK; measuring and evaluating knowledge; visualising OK; distributing and transferring OK to others; sharing and applying knowledge; retaining and maintaining OK as an asset (Ullah 2020; Santoro, Vrontis, Thrassou and Dezi 2018; Tounkara 2019).

***Mobile telecommunication industries:*** These are corporations that provide telephone services to phones which may be moved around freely rather than remain fixed in one location (Rhem 2017; Albassam 2019; Sony 2020).

***Organisational knowledge management systems*** are classified as information technologies set for organisational knowledge, acquisitions, creation, combination, transfer and application (Zhurba 2019; Ullah 2020). KMS are assumed to efficiently and effectively leverage shared OK and employees' tacit OK for information processing, decision-making stored in database management, using an intranet, electronic knowledge repositories, electronic mail systems, web technology systems, workflow, groupware systems and KM2.0, data mining, content management systems, DMS, artificial intelligence tools; OK map systems, electronic knowledge portals and e-community of practice implemented to support KM initiatives (Dei 2017; Sarnika and Deokar 2017; Zhurba 2019; Ullah 2020).

## **1.11 Preliminary Literature Review**

In this study, a literature review is an organised and summarised critical discussion related to literature and experience of the context, such as organisational KMS strategy, infrastructure, management support and employee perception towards organisational KMS, as well as enablers, were seen as relevant to the research topic as suggested by Ngulube (2020b). Creswell and Creswell (2018) state that a literature review is a process of locating and summarising the studies about the research topic to enable a reader to understand the basic features of the study. In this study, the literature relating to MT companies' policy frameworks/strategies that enable KM, support for the application/implementation of organisational KMS, infrastructure, tools, usability and perception, as well as enablers to organisational KM systems, is reviewed and discussed in detail in subsequent chapters.

### **1.11.1 Knowledge Management strategy for Knowledge Management System**

In order for MT companies in Namibia to have a sound grip on the organisational KMS, the organisational KM strategy is important. The KM approach is based on two main features, namely codification and personalisation (McCracken and Edward 2015; Tsai and Hung 2016). Specifically speaking on the value of the KM organisational strategy for KMS as a competitive advantage, Tsai and Hung (2016), as well as Basten, Schneider and Pankratz (2017), argue that the KM strategy strengthens the competitive organisational strategy. In the same way, Ouriques, Wnuk, Gorschek and Svensson (2019) and Özlen and Handzic (2020) point out that the KM approach allows the organisation to generate a flow of OK assets and OK processing capabilities.

Organisational KM strategy comprises core features including, but not limited to, KM compatibility with culture, OK consumer, capture, structuring, transition, exchange, delivery, product and services, performance, OK audit, OK business routines, processes, subject matter experts, OK retention, OK compensation schemes and rewards systems, as indicated by Basten, Schneider and Pankratz (2020). Alhamoudi (2015: 861) claims that these successes of the KM must be decisively and effectively related to the strategy of the organisation to ensure the successful integration of the KM and serve as a tool for strengthening the strategic position of the OK function a concrete effect on organisations. This is imperative for the organisational strategy of the KM and its associated facets, which should be observed and appreciated for the

successful execution of the organisational KMS. This study discusses these features of the organisational KMS implementation strategy for MT companies in Namibia and how they impact employees and the KM strategy, all of which are important to this research. Wang and Wang (2016:839) submit that it is important to know the determinants of the implementation of organisational KMS in order to carry out correct evaluations and judgments as to whether their organisations should function and use the organisational KMS.

### **1.11.2 Knowledge Management Systems infrastructure**

An organisation that applies and utilises the organisational KMS architecture discusses the grouping of OK/data supplying, warehouse/storage, ICT equipment, organisational KMS, databases and data warehouses, enterprise resource planning structures and processes that improve its performance (Fernandez and Sabherwal 2010; Wang, Olayinka, Zhang and Shi 2016). Such infrastructure is at the top of the organisational KMS for KM, as information flows in knowledge archives, electronic mail systems, groupware, KM2.0, data processing, databases and data warehouses, expert systems, journals, wikis, metadata, artificial intelligence tools; internal networks, OK map systems, electronic knowledge portals and e-communities of practice implemented to support KM initiatives (Jain 2017). This study also investigated these features in MT companies in relation to organisational KMS for KM practice. The description above seems to be in line with Jain's (2017) and Mohd-Shukri and Goyal's (2020) observations, who point out that organisational KMS infrastructure serves as an infrastructure capable of channelling, handling and securing OK in an organisation and also provides the fundamental structure for organisational KMS.

### **1.11.3 Knowledge Management Systems Usability**

Fenton and Bieman (2015:457) aver that usability is the extent to which organisational KMS is measured by how well-defined users are able to apply it to the achievement of established objectives with appropriate levels of effectiveness, efficiency, and user satisfaction. This is amplified by Wang, Olayinka, Zhang and Shi (2016), as well as Mohd-Shukri and Goyal (2020), who assert that perceptions are beliefs held by employees towards the value of their OK. Organisational KMS usability ought to be mostly about the user-friendliness of the system's interface. According to Mohd-Shukri and Goyal (2020), in order to ensure the OK is leveraged collectively, workers can

benefit from each other when collaborating with the system. The usability of an organisation's KMS is critical for safe sharing (Han and Anantatmula 2006).

MT companies in Namibia need to access high-tech-worth employees who complement and innovate around the organisational KMS usability. This argument seems to be in line with Mohd-Shukri and Goyal (2020) who stipulate that using organisational KMS depends on the accessibility of such technologies, right functionality and capabilities. This is also supported by Wang, Olayinka, Zhang and Shi (2016) who propose that the kind of systems ought to be tailored for the management team and reducing the functionality of the systems (meeting only an explicit convention of management information requirements). In addition, user interfaces may be customised for each user, and the database can be populated with relevant documents and organised into folders for easy storage and retrieval (Wang, Olayinka, Zhang, and Shi 2016; Mohd-Shukri and Goyal 2020). This study looked into these issues in MT companies in Namibia.

#### **1.11.4 Enablers and barriers to Knowledge Management Systems**

Thang and Tuan (2020) and Yasir and Majid (2017) refer to the fundamental elements that define the effectiveness and efficiency of implementing organisational KM in relation to the current state of the exploitation of IT, organisational culture, behaviour, attitude, lack of management support and strategies among the members, which are the critical drivers that coagulate KM. Wang and Wang (2016:838) infer that KMS implementation is grounded on features such as seeming aids, adaptability/compatibility, executive backing, organisational culture and viable/edge. Organisational KMS barriers and enablers to organisational KM are in one specific feature.

Vaz-Serra and Edwards (2020) suggest that key success factors of an organization's KMS may become major failure factors if they are not implemented, used, and audited well. Understanding issues related to employee differences for the implementation of organisational KMS is critical to this study. In this setting, the study goes into detail on the issues mentioned above in section 3.8. This is in relation to important fundamentals required for implemented organisational KMS on concepts such as organisational KMS strategies, infrastructure, senior managers' support and employees' perception, as well as to establish enablers as key concepts for the study.

### **1.12 Research Methodology**

Sarantakos (2013), Cohen, Manion and Morrison (2018) and Creswell and Plano Clark (2018) claim that research methodology discourse is a procedure or approach used to unravel the research problem or science to analyse how a research problem has been approached. It is a series of practices used to advise and assist the researcher in achieving correct and consistent investigation findings for the study. The research methodology of the study consisted of the following components: research paradigm, research methods, research design, study population, sampling procedures, sampling frame, sampling size, data collection methods, data analysis and presentation reliability and validity of the data. The research approach was inspired by the methodological assumptions proposed by Cohen, Manion and Morrison (2018) and Creswell and Plano Clark (2018), and Ngulube (2015a, 2019; 2020b), that the methodology for social examination includes four norms: philosophic assumptions and positions, the rationality of research, guiding principles for practice and socio-political phenomena in research.

As the procedural line of interpreting empirical phenomena, social science research is focused on a three-fold model of qualitative, quantitative, and mixed-method approaches (Creswell and Plano Clark 2018; Ngulube 2015a, 2019; Ghauri, Grønhaug and Strange 2020). Quantitative research is noted for its deductive approach, which relies on the theory-driven phenomena under study, and the numerical prism connects data collection and analysis to the positivist model. The process of social interaction and the ontological and epistemological inference lens for interpretivism are the subjects of a qualitative review, which concludes that the method is more inductive, developing and driven by the researcher's experience in data collection and interpretation (Ghauri, Grønhaug and Strange 2020). The thesis assumed that a

mixed-method approach was compatible with the pragmatism of the research problem and the essence of data collection and interpretation, as suggested by Ngulube (2020b). MM research allowed the researcher to use the amalgamation of qualitative and quantitative analysis approaches to explore the size of the deployment of KMS in MT companies in Namibia. Pragmatism or philosophical heterogeneity has been used in an effort to cause a breach in the midst of the interpretivist and positivist epistemologies (Ngulube 2015a:127). Chapter 4 of the report offers a detailed overview of the research methods used for the study.

### **1.13 Ethical Considerations**

According to Dube, Mhlongo and Ngulube (2014:201), conventional research is steered by well-known ethical customs. In the same vein, Richardson and McMullan (2007) maintain that social science researchers, when researching the understanding of 'the social', are thought to come in contact with ethical issues. Therefore, given the importance of ethics in social research, this study was carried out in full conformity with ethical standards as prescribed by the University of South Africa's (UNISA) policy on research ethics (UNISA 2016). In practice, this ensured the anonymity of research respondents, and it was made clear that participation in this research was voluntary. The researcher respected the dignity of the subjects, and there was honesty in dealing with the questionnaires, document analysis, observations and interview questions, data analysis and interpretation, as well as the presentation of the research findings.

### **1.14 Scope and Limitation of the Study**

This study focused on the investigation of the implementation of organisational KMS in MT companies in Namibia, namely TN Mobile and MTC Head Office, excluding provincial offices around Namibia. The focus was mainly to identify organisational KMS implementation looking at organisational policies, in relation to KM strategy, infrastructure and enablers in MT companies to advance organisational KMS for organisational KM processes in Namibia. The researcher distributed the link to 309 questionnaires and conducted eleven of the twenty scheduled interviews at these two institutions. Other telecommunication companies, namely fixed network operators could not form part of the study even though they could have made a meaningful contribution to the study.

Taherdoost (2016) and Ghauri, Grnhaug, and Strange (2020) contend that a small number of participants limits the generalizability of the findings since participants are picked based on their information richness. Taherdoost (2016) widens the argument by indicating that, as with all surveys, the generalisability or external validity of these findings beyond the organisation depends on the logic of replication.

Considering these views, findings from this study cannot be generalised beyond TN Mobile and MTC but can be replicated into another private sector. Although the researcher is conscious that a larger sample would have provided interesting results, Ondari-Okemwa (2007:32) argues that it is difficult to manage larger samples considering the time and financial resources available to researchers. Furthermore, a smaller sample was thought not to provide for a detailed evaluation of the study of organisational KMS in Namibia. Instead, it serves as a good starting point of research into organisational KMS, considering the dearth of studies on organisational KMS and organisational KM in Namibia in particular.

### **1.15 Organisation of the Thesis**

This thesis is divided into seven chapters.

**Chapter 1** provides a brief introduction of the topic, context to the study setting, discussion of the research problem, objectives of the study, originality, and significance of the study. This chapter also gives a summary of the literature reviewed, and the methodology used.

**Chapter 2** discusses the historical background of the study in relation to MT and the legal and policy framework for organisational KM in Namibia. The chapter concludes with the definition of OK and KM.

**Chapter 3** discusses the conceptual framework and reviews the literature of the study.

**Chapter 4** describes the research methodology, in particular, philosophical assumptions and methodological viewpoints of this study.



**Chapter 5** presents the research findings from the surveys, questionnaires, document analysis and interviews. The data will be presented according to the research objectives of the study.

**Chapter 6** discusses the research findings of the study and draws some continuities and discontinuities with existing related literature.

**Chapter 7** summarises the findings, draws conclusions and shows whether or not the objectives of this study were met and proffers some recommendations. Furthermore, a framework for explaining the implementation of organisational KMS for MT companies is presented.

### **1.16 Summary of the Chapter**

This chapter introduced and provided the context of the study and showed a dearth of studies presenting a complete picture of organisational KMS implementation in selected MT companies in Namibia. The chapter also briefly looked at related writings on organisational KMS and discussed the study's theoretical framework, research problem, research purpose and objectives, as well as research questions. It also defined key terms before engaging with the research methodology adopted for this study. Issues relating to the importance of ethical considerations were emphasised, and procedures were taken to endorse the ethical concern of the study.

## **CHAPTER TWO: CONTEXT AND BACKGROUND OF THE STUDY**

### **2.1 Introduction**

The preceding chapter established and outlined the purpose of the study. This chapter opens with a description of Namibia's political and historical context, which serves to explain the origins of telecommunications services in Namibia, as well as the legal and legislative framework that governs them. In Namibia, the connections between technology and colonialism were significant under the scope of the history of technology as a result of colonialism. Today's social history of technology is oriented toward comprehending the origins and magnitude of technological spectacles (Rhem 2017; Albassam 2019). Due to the complexity of the nature of OK, the chapter also discusses OK literature to develop a meaningful understanding when investigating organisational KMS in MT companies by tabulating types of OK and KM. The chapter concludes with a summary.

### **2.2 Namibia's Historical Background: An Overview**

It is important to bear in mind that institutions under investigation relate to telecommunications in Namibia. Namibia's historical background was seen as a critical element upon which to launch this study, since it helps to understand how the telecommunications path came about in Namibia and how it affects and influences the socio-economic development of Namibia. The history of telecommunications in Namibia helps explain the present state of the industry's regulations and practices. This is connected to colonialism and has long-term ramifications for the present state of affairs. This is because dominance included the exclusion of the black Namibian population from having access to technology. Arnold (2006) explains the lengthy history of technology in non-European territory as:

[it] ... relates to the occurrence in the mid to late 19<sup>th</sup> era and was linked with the initiation (around areas, union) of European domains and the influx of modern built-up technology, and traditional technologies (among others telecommunications) nursed into the development of (superficially) unidirectional technology streams from Europe to the colonies that continued up until World War II, or as long as the realms themselves. This diffusionist sequence of events exemplifies the notion of technology as a grand historical narrative, as a primary determining factor to account for the above (Arnold 2006:91).

For example, the literature shows that by the year 1800, Europeans governed about 35% of the terrestrial surface of the world and by the year 1878 the number had grown to 67% of the land area that was conquered by Europeans (Headrick 1981:3), and this includes most parts of Africa. As a result, Namibia's telecommunication industry history, like that of many other African countries, dates back to the era of colonialism, also known as the 'scramble for Africa,' the 'partition of Africa,' or the 'Conquest of Africa.' Namibia's colonial importance stretches from its abundant mineral resources, which colonisers were after. However, the primary telecommunication historical evidence of Namibia is described by the absolute dearth of documented data (Dierks 1999). The dispossession of land and services of the local people of Namibia signifies a pivotal highlight of German and South African colonial rule. During the Berlin Africa Conference, which took place in 1884/5, European countries divided Africa among themselves.

From 1884 to 1915, Germany acquired and colonised Namibia and turned the country into what was known as Germany South West Africa (GSWA) (Dierks 1999; Zollmann 2011). History points out that Chancellor Otto von Bismarck, then German Chancellor, was unperturbed to colonise Namibia. The idea was based on the view that African countries ought to remain as *Schutzgebiet* (protectorates). Therefore, regulating colonial policing in GSWA, in particular, telecommunication Namibia was an administrative protectorate, grounded on a request by a tradesman called Adolf Lüderitz, who asked for protection of what was seen as his possession covering areas such as Angra Pequena (today known as Lüderitz Bay or Lüderitzbaai or its original name! *Nami#nūs* and Swakopmund (Zollman 2011; Dierks 1999).

According to Zollmann (2011) and Dierks (1999), the early colonial administration of Namibia and other countries leaned on trial and error to stamp authority in order to implement discriminatory and rudimentary statehood. Therefore, to meet international colonial standards, in 1886, the then German Parliament passed, *Schutzgebietsgesetz* (Germany colonial Law) to GSWA. It is from this perspective that Zollman (2011:36) argues that this led to the introduction of the *Kaiserlich Berittene Bundespolizei Für Deutsch-Südwestafrika* (imperial mounted police force) in GSWA. The scholar continues to state that the police force perpetuated the enforcement of discriminatory, segregation and brutal administration towards Africans.

This evidence points to the first 19<sup>th</sup>-century genocide of the Ovaherero and Nama people, which was committed by the Germans, the colonial masters. Conceivably, colonialism or colonial rule, be it that of Germany, Great Britain, Portugal or the Netherlands, was fundamentally, economically and socially unjust, hence cruel towards Africans who were deprived of accessing necessary services, including access to telecommunication services.

South Africa ruled Namibia with the help of some tyrannical laws, such as the promulgation of Proclamation No. 56 of 1951, which established urban segregation and the extension of the South African 1913 Native Land Act to Namibia. This legislation gave birth to the traditional establishment of location, compulsion, coercive segregation and urban stay registration. The South African apartheid hurt Namibians worse than before through the use of continuous discriminatory laws. During this period, Namibia was unrelentingly and purposefully divided into racial and ethnic homelands. Such action had negative consequences on black Namibians, especially when it comes to accessing specific means of communications and health services. Blacks were not allowed own and enter certain areas where new services were made available only to white people.

The consequences of this political landscape, however, had a profound repercussion on who accessed the means of communication, health, transport and education. Dierks (1999) established that the unstable telecommunications substructure evident after pre-independence is the pre-historical mirror of Namibia's colonial legacy. This is so because telecommunications were gradually and technologically advanced to serve the interests of the colonial masters over and above the interests of the native people of Namibia. This created a significant disparity between Namibia's "modern, first-world" sector and its impoverished "third-world" segment, where the majority of Namibians live.

### **2.2.1 South West Africa Telecommunication Industries**

Namibia is approximately 840 square kilometres, bordering Angola to the North, Botswana, Zambia and Zimbabwe to the east and South Africa to the South. From Antediluvian times, Africa had the knowledge and means of how to communicate information central to the survival of humanity. According to Dierk (2009), this situation formed the central and underlying premise of Namibia's imputing of communication

services, demonstrating a lack of symmetry between the new white community and African homelands. This resulted in the modern established setup of telecommunications and railway services in Namibia being reserved for the white minority.

As a result of a brutal divide and rule by the colonisers, Dierk (1998, 2001) states that the northern part of Namibia was lagging behind and was meant to supply inexpensive non-negotiable labour with little pecuniary income or commercialised manufacture so that it had little active call for merchandise and goods and services, including telecommunication facilities. Moreover, the telecommunications and transportation epoch which stretched in the then GSWA was evidently from 1884. As the demand for transporting mined minerals and telecommunication, on 6<sup>th</sup> January 1899, German colonial rulers came into an agreement with the *Eastern and South Africa Telegraph Company* to construct telecommunications, joining Mossâmedes via Namibia to Angola and to Cape Town. The town of Swakopmund was the first town in Namibia to connect to a telephone network with 28 lines between October 1901 and 1906. The central towns, such as Karibib on 9 August 1901, Okahandja on 22 August 1902, and Windhoek on 27 October 1902, were the first to have telephone lines (Dierks 1999).

Telecommunication facilities were long-drawn-out to valuable economic towns where diamonds and other mineral resources were mined, mostly in the southern part of Namibia. Given the benefits of telecommunications infrastructure, Dierk (1998) states that the next were the settlers' colonies, such as farms, which came into operation in 1909 between Gibeon and Maltahohe and Okahandja to Ombirisu in 1912. Of those, 32 farms were connected in 1913. The first wireless telephone link covering a range of eight kilometers between Germany (Nauen) and Namibia (Windhoek) through Kamina (Togo) in 1913 was connected (Dierk 1998). Furthermore, Dierk (1998) states that the first certified communiqué through the link was the German declaration of war after the First World War occupation of Germany South-West Africa.

This historical background assisted to demonstrate the acknowledgment and commitment of Namibia to access to information, although for the minority white people. Headrick (1981) argues that this situation was the founding introductory moment, which points to Western technology being used to promote the formation of

foreign territories, and for the management and exploitation of the black majority (Arnold 2006:91).

### **2.2.2 Legal and Policy Framework in an Independent Namibia**

This section discusses the understanding of the legal framework of telecommunications in independent Namibia. In a KBS legislation plays an essential role in the management and access to the management of information, knowledge, communication and technology services in Namibia. According to the Organisation for Economic Cooperation and Development (OECD) (2003), in the twenty-first century, there is an acknowledgement of the need to comprehend and quantify the activity of KM so that businesses and systems of businesses can provide better services and governments can develop policies that promote better services.

In 1990, Namibia became a democratic, independent state. Admitting the effects of Namibia's historical colonial inheritance, social and economic neglect of the majority of Namibian people, access to telecommunication, transportation, and information and communication services, democratic legislation was put in place. This is because, as a result of colonialism, Namibia saw a decline in investment in ICT telecommunications infrastructure in black-majority areas. Russ (2018) and Chandna and Lusco (2018), point out that in Africa there is a lack of ICT institutional reinforcement due to the historical inheritance of colonialism and the efforts of independent African states to continue to implant Western-type bureaucracies and organisational models, which have led to a reduced capacity to manage change in many organisations.

In an address to the second Public Forum on Namibia's Urban Future in 2015, the then Minister of Urban Development, Honourable Sophia Shaningwa, stated that "It is a well-known fact that Namibia inherited various challenges which resulted from the apartheid system and Namibians are inquiring on policies and practices such as ultimate issues affecting their daily lives". The implication is that the telecommunication companies contributes immensely to the socio-economic existence of Namibia.

To this effect, the Constitution of the Republic of Namibia grants every citizen the right to access to information, communication technology and set up the Ministry of Information Communication and Technology, as the custodian of drafting ICT policies.

These drafted laws and policy frameworks are driven by the Namibia Constitution, which is the supreme law of the Republic of Namibia. The legislation discussed below concerns the advancement of Namibia as a KBS in terms of information and KM as well as access to telecommunication services, which was critical to this study.

Acts of parliament such as the Posts and Telecommunications Act 19 of 1992 make provision for the establishment of laws for the control of and use of influence over the postal services and telecommunications services in Namibia. However, it is made available for a variety of powers, functions and the responsibility of Namibian Post Limited and Telecom Namibia Limited, as well as matters related to that. This Act gave birth to the founding of Telecom Namibia which forms part of this investigation.

The Communications Act 8 of 2009 stipulates the parameters of telecommunications service industries and networks, dissemination, postal services and the use and provision of the radio spectrum. To provide for this Act, a sovereign Communications Regulatory Authority of Namibia was established. It makes establishment for its privileges and roles; the exempting of exclusive rights to telecommunications lessees; the concept of an alliance to supervise the internet realm namespace and for affairs tied in addition to that. To a more considerable extent, this facilitates the sharing of information and knowledge. In fact, this puts in place the required resources to enable the development and in-house distribution thereof through communication. This is in line with Article 19 of the UN Declaration on Human Rights (United Nations 1949), which affirms the right to information as a fundamental human right (Mhlongo 2018:19). Namibia is a signatory to this international instrument.

According to the Namibia National Research Science and Technology Act No. 23 of 2004, 'technology' means the application of scientific ethics to industries or commerce, as well as the application of all practical OK, aids and skills available to the Namibian society for commerce, trade, business, arts and science, including indigenous technology. Furthermore, it provides for the campaign, co-initiation and growth of research, knowledge and technology. This led to the setting up of the National Commission on Research, Science and Technology. Namibia also developed a developmental road map, Vision 2030, which proffers several objectives on how to develop Namibia and turn it into an industrialised knowledge-based economy by the year 2030. The Namibian National Development Strategy led various institutions to

adapt and to see the significance of ICT and KM as crucial developmental aspects in a KBS for development.

The Telecommunications Policy for the Republic of Namibia (2009) provides for information technology and broadcasting policies. These policies serve as a comprehensive policy manuscript lens for national, regional, continental and global expansions in information technology, as well as a larger, congregated segment. As mentioned in Chapter 1, the telecommunications sector plays an essential role in Namibia's socio-economic developmental goals. These policies are therefore driven from:

- (a) *Affordable, efficient and high-quality services*, where a full, reliable and efficient supply of telecommunications services in Namibia is promoted. These services ought to be of international standards at the lowest with commercially pegged prices to allow the operator and service provider to make a commercially acceptable return on its investment.
- (b) *Universal access*, which entails providing universal access to advanced information services to achieve the Namibian government's goals.
- (c) *Regional balance*, which means that telecommunications are set to play a significant part in integrating all regions into the socio-economic development of Namibia (MICT 2009:5).

From this perspective, one can recognise the value of data, information and knowledge currently at the MT sectors, the need to reinforce Namibia's development as a critical value-creation tool, encouraging a commercial culture that boosts the dissemination of information and KM. They encourage working methods and environments that foster the exchange of ideas and knowledge.

In 2019, the then Minister of Information Communications and Technology introduced the *Electronic Communication and Transactions Bill* in parliament. While presenting the bill to parliament, the then Minister explained that, when passed, the bill would be responsible for an all-purpose structure for the preferment of the usage of electronic communications in the government service area and private deals. The Minister proceeded to suggest that the bill was further set to make available for the legal acknowledgement of electronic connections; be responsible for the admission of electronic substantiation; consumer security in the electronic market; and to control



the liability of service bill payer for schedules of clients. The minister went on to suggest that the bill would also deliver the security of severe and valuable information and data and would lead to the establishment of the Electronic Information Systems Management Advisory Council of Namibia, which would wield power and purpose as stipulated by the bill.

In the same vein, the Namibia National Development Plans (National Planning Commission, NPC, 2008, 2013, 2017) and Namibia Vision 2030 stipulate the role of ICT in relation to improved service delivery and innovation for development. National Development Goal IV (NPC 2013: 62) posits that substantial investment in infrastructure from transport and water to electricity and telecommunications has not supported the drive to establish an environment that would enable the private sector to flourish. Emerging challenges of this nature, if not addressed over the next few years, would stand in the way of Namibia meeting its developmental target and compromise economic growth, as parts of the country will still be without telecommunications transmission lines.

The mutual rudiments, scope and catalogues of the regulatory frameworks, as stated above, are the much-needed magnitudes and doctrines for measuring Namibia's communications regulatory framework (Shanapinda 2015:10). This demonstrates that both the government of the Republic of Namibia and the private sector recognise the importance of ICT for socioeconomic development. MT companies in Namibia ought to see that organisational KMS implementation is a necessary means to assist with the processes of managing tacit and explicit OK to prompt new innovative OK, new products and services that can be used around the world.

MT companies trade in technology and, in many instances, these companies are early ICT adopters. Thus, to keep the trend of inducing new organisational ideas for the continuous invention of new products and services, KMS are critical. KMS assist the innovative organisation in the timely dissemination of OK. It is in this context that this study investigates the degree to which MTC, and TN Mobile companies have made advances in using organisational KM, in particular KMS, to claim the usefulness of organisational KMS for excellence or competitive advantage to induce innovation. In addition, this study explores the extent of organisational KMS implementation, use and

contribution to KM practices in MTC and TN Mobile companies in Namibia, looking at overcoming employee challenges.

### **2.2.3 Mobile Telecommunication in Independent Namibia**

This section discusses MT companies in Namibia. With legislation put in place after independence, Namibia's telecommunication operators were established. As the communications machinery advanced, society was brought into superior interaction and made more knowledgeable and pluralistic (Headrick 2009: viii).

In Namibia, telecommunications are divided into two categories, namely mobile and fixed network operators which are run by three companies: Telecom Namibia Mobile (TN Mobile), Mobile Telecommunications Corporation (MTC) and Telecom Namibia Ltd (TN). In this regard, mobile telecommunications operators are TN Mobile, established in 2007, a brainchild of Telecom Namibia. MTC was formed in 1995, and Telecom Namibia, which is the only fixed network operator in Namibia, was formed by an Act of Parliament known as the *Posts and Telecommunications Act 19 of 1992*. These sectors cover the telecommunication needs of the Namibian population, currently projected at 2.4 million (NSA 2011).

In 2017, it was estimated that there were about 90% of mobile voice call service users in Namibia (The Business 2017). This is so as MT companies are systems made up of networks of employees/people and working groups as the first pedal for capacity expansion to induce innovation. As a result, each employee's and department's knowledge should be recognised and managed well to the overall benefits. For this reason, it is expressly key to categorise where acute knowledge could be located within the MT companies to induce innovation for a competitive edge.

The mobile telecommunications industry contributes massively to Namibia's economy. The Digital Economy Readiness Index (DERI), as quoted in the *Africa and Middle East Telecom-Week* (2017) report, established that out of a compilation of more than 479 digital-economy initiatives, the 35 largest operators worldwide in terms of mobile revenue reveal that mobile health and financial services dominate Africa's digital-economy landscape. The contribution to development by the telecommunications industry is evident, and these companies find themselves in an unusual situation, such as the demand for quality service, products and an ever-increasing number of users.

As a result, TN Mobile and MTC Mobile continue to expand their services and upgrade their infrastructure in order to meet customer demand.

Given the foregoing, implication companies opened their operations to a global competitive technological market, with their growth, product and service demands defining their success. Thus, they paved the way for good services for the communities they serve. In this context, managing knowledge is critical in order to bring innovation to their shoreline services. Taking note of the increasing number of mobile service users and opening up to a high-tech competitive world, understanding the challenges that come with the use of KMS to leverage OK to meet customer demand is critical and worth exploration.

#### **2.2.4 Information and Communications Technology**

In a KBS, ICT has revolutionised and directed global socio-economic development. The understanding is that ICT has become a critical element for development and contributes to the realisation of the socio-economic development of a country. According to the United Nations Economic and Social Council (UNESCO) (2003), ICT relates to computers, networking and electronic data processing, as well as rapidly improving communication technologies for development. UNESCO further indicated that ICT includes, among other things, mobile telephony, satellite communications, multi-fold expansion in bandwidths for voice and data-carrying capacity by the use of new materials such as fibre-optics.

This also includes the software for new, more efficient and more widespread applications of these new technologies and capacities. This definition encompasses a wide range of areas, such as computers, software systems, telecommunications, optical cables, electronic databases and bandwidth. These aid organisational KMS to process, capture, store and share and retrieve OK within an organisation. As a result, in today's business world, most corporate executives have confidence in the supremacy of computers and communication technologies for organisational KM. In this line, the use of systems (particularly computers and telecommunications) offers benefits in harvesting OK from piles of old submerged data fountains, such as point of sales, client credit cards, advertising sales and seasonal discount data (Bhatt 2001). In Namibia, ICT is perceived as an essential enabler for the development of the country. This is confirmed by UNESCO (2000) and NPC (2017) which state that ICT

can play an especially important part in hastening growth, eradicating poverty and promoting sustainable development, especially in developing and transitioning economic countries and in facilitating their beneficial integration into the global economy. Cognisant of the importance of ICT to economic growth, Namibia has developed and implemented an ICT policy. Namibia's ICT policy states that the adoption and exploitation of ICT are instrumental in the creation of sustainable growth and development (The Ministry of Information and Communication Technology, MICT, 2009:2). The policy outlines the importance of ICT for development by stipulating that:

... the worldwide financial system is currently dependent and shaped by the benefits arising from ICT. For Namibia, as a developing country, ICT is a prerequisite for the potential economic contributor to economic growth. It pays to inexhaustible prospects – with few – for all sectors of society (public sector, civil society and industry) to access – and service benefactors that are competitive players in international markets create opportunities for employment and economic diversification. Hence, embracing the development of ICT, Namibians benefit through access and availability of information that will assist them in their daily lives, increase the competitiveness of business and commerce in the global marketplace and establishment of an environment conducive to the development of Namibian-based economy (MICT 2009:2).

What comes out of this description is that access to and utilisation of ICT is essential for socio-economic development. This is the objective of the Namibian National Development Strategy, which directs various institutions to adapt and see the significance of ICT and KM as a crucial developmental aspect in a KBS for development. The Namibian Third National Development Goal (NPD3) states that the expansion of the telecommunications infrastructure is a backbone for development and excellent service to the growing population of Namibia. The NDP 3 further states that the establishment and rolling-out of high-speed/broadband access networks; the expansion of the Post Office network; and the roll-out of broadcasting services countrywide are significant for growth, as Namibia marches towards a KBS.

It was important to understand the effects or trends of ICT on socio-economic development, such as access and usage in Namibia. According to the World Economic Forum's 2016 Global Information Technology (GIT) report (2016:197), Namibia is ranked 34th, with a value of 4.3 for the effectiveness of law-making, 86th for ICT law

and 36th for intellectual property. It is from this perspective that it is suggested that Namibia has made strides in access to ICT. WEF (2016) reports that, in Namibia, access to the latest technology ranks 48<sup>th</sup> in the world. According to the Central Intelligence Agency (CIA), in Namibia, 31.0% of its population (756 118) have access to the internet and mobile broadband internet subscription is at 34.2% in the world. Namibian businesses have also embraced the use of ICT in their business, whereas Namibia is ranked 49<sup>th</sup>, with 5.0 values around the world rankings. The report also points out that this growth can be attributed to the government's policy emphasis on the use of ICT for development and future improvement of competitiveness grounded in having a clear ICT plan. The International Telecommunication Union (ITU) (2017) reports that Namibia has the least expensive mobile cellular services in Africa, compared to Kenya, Ethiopia, Ghana and Mauritius.

However, ICT comes with its challenges that need to be investigated. Reference is made to Acosta and Navarro (2016) who argue that the nature of first-hand technologies that make available or access to the use of OK, such as social networking tools, wikis, interior blogging and the way they are used, suggest that nowadays they may differ from traditional organisational systems in two critical ways, namely (1) the voluntary (typically not mandatory) use and (2) lack of activity or process orientation. In this study, employee' attitudes and behaviour towards KMS tools require a comprehensive understanding as to what or how they affect ITC implementation. Employees' overall attitude towards the use of ICT tools is hypothesised to be a significant determining factor in whether the employees will use it, based on the benefits perceived and ease of use (Davis, 1991).

A discussion of this context paints a picture of how Namibia has progressed in a KBS by enacting organisational KM laws and policies maximising the ICT positive effects for organisational KMS for KM practices. Since ICT has the power to transform MT companies into learning organisations, hence recognising ICT importance benefits stems from policies that acknowledge modern technology as essential. Although MT companies were early adopters of technology as an essential enabler for KM, in this study, individual employees' understanding was essential and a lens used to investigate the effective implementation of KMS over organisational KMS strategy, infrastructure, behaviour and attitudes of individual employees' in relation to challenges for organisational KM practice.

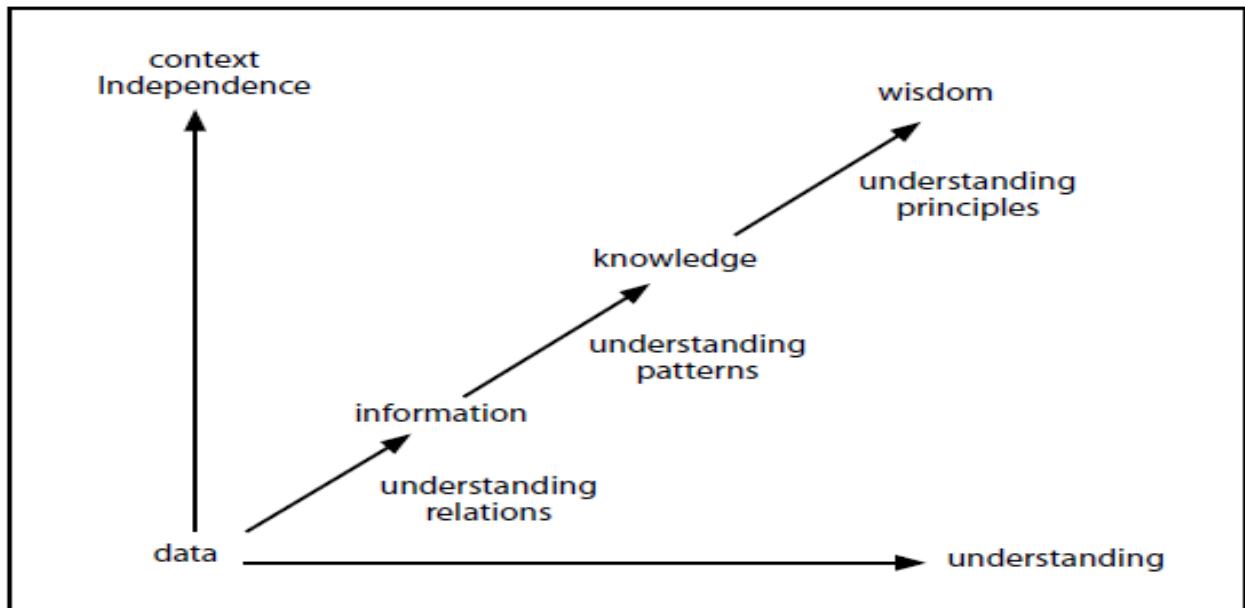
The aforementioned literature discussed the current state of ICT in Namibia in relation to KMS for KM practice. In Namibia, however, little is understood about the extent to which ICT provides a contextual and practical understanding of knowledge management. In Section 2.3, discuss data, information, knowledge, and knowledge management (KM) concepts to aid in the comprehension of knowledge management systems and their relevance to knowledge management.

### **2.3 Concept of Data, Information, Knowledge and KM**

It is surmised that, from the inception of Greek philosophy, there has always been a difference of opinion on what constitutes knowledge, and this has dominated academic discourse. This dilemma has led scholars to define OK from the fields of their studies. Despite levels of divergence in academic discourse, scholars seem to have found common ground on the fact that managing data, information and OK by the use of KMS helps the sustenance of an organisation in a high-tech, competitive environment and induces innovation.

The OK as the birthplace of a company's economic benefit (Ichinjo and Nonaka 2007) and managing it using KMS, transforms OK's timely accessibility and usage. Hence, defining data, information, OK and KM as acute and essential in relation to organisational KMS was important for this study. Nonaka (1994) describes data as an inadequate degree of detail or shreds of evidence, numbers or facts. Uriarte (2008:2) argues that ordinary gathered data are not information unless there is a relation between the pieces of data. The scholar continues to state that what makes an assemblage of data, information, rests on the contacts between the quantities of data is the context, that is, the kith and kin among the parts of data. The OK is codified unambiguously and subsequently it is correctly transferred from an individual employee as an architect to other employees, who are thought to benefit from it to induce performance or innovation, as suggested by Davison, Ou and Martinsons (2012). However, with a large amount of technology in the place of work, organisational KM practices are progressively more digital such that they are fundamentally interceded and maintained by an ever-broadening arrangement of social technologies (Jarrahi and Sawyer 2013:111). As a result, this study looked into these informal technologies because it was assumed that many formal technologies (Davison, Ou, and Martinsons 2012:2) are arrayed or, on rare occasions, developed

to repair unstructured, implicit and frequently uncertain individual employee exchanges.



**Figure 1: Concept of data, information and knowledge (Source: Uriarte 2008:2)**

Figure 1 demonstrates that the value of data begins with unprocessed realities that must be transformed into details before they can be considered valuable or beneficial knowledge. As a result, when placed into context, it generates value, hence the shift from the low value to the higher value. It is essential to note, however, that the data or information lacks contextual drive if it lacks a use or purpose and cannot be shaped around specifics, evidence, experience, or events to determine the outcome or product. In light of the above, information is either an official procedure or processed facts, details, or evidence. Nonaka and Teece (2001); Nonaka, Toyama, and Hirata (2008) define knowledge as the process of understanding method(s) to some extent through mechanisms transformed by new information, but it is fundamentally based on interdependent or inter-relationships of employee behaviour.

This study adopted the definitions by Davenport and Prusak (1998); Nonaka (1994), and Nonaka and Takeuchi (1995), who refer to OK as proceeding from information and experience, including the justified beliefs of an employee, which Nonaka and Takeuchi (1994) classify as tacit or explicit OK. According to Ondari-Okemwa and Smith (2009:29), KM is the process of understanding and discovering, capturing and acquiring of OK from an organisation's diversity of sources, hence decided on,

selected, filtered and classification of existing data, storing and tradable and designing OK ontologies. Therefore, becoming aware of these assumptions of OK underlies a contribution as a resource for strategic organisational progression, data and information, bringing about the necessary critical foundation on how to transform new ideas, experiences or OK to induce innovative products or services stored in employees' heads, electronic databases and repositories.

### **2.3.1 Types of Organisational Knowledge**

Polanyi (1966) and Nonaka (1994) claim that OK can be either tacit or explicit. According to Nonaka (1994), Nonaka and Takeuchi (1995), Nonaka, Toyama, and Hirata (2008), and Adesina and Ocholla (2020), a consequential working description of OK purports that OK could escalate MT companies' capabilities to induce innovation via practical action and makes itself evident in a twofold fashion, both tacit and explicit. It is from this perspective that Nonaka (1994) and Nonaka and Takeuchi (1995) argue that explicit (codified) OK denotes OK that is communicable in a prescribed, objective, and organised language. In other words, OK is articulated in words, statistics, and illustrations and collectively shared in the system of data, logical principles, and guidebooks. However, it has been observed that tacit OK (TOK) is subjective and experience-bound, making it difficult to freely express in words and grounded experience (in minds and not codified).

What comes out of these delineations is that tacit OK is extremely idiosyncratic or individualistic and circumstantial, definitely challenging to share with colleagues, acquired and traded word for word, either through experience or observation. Tacit OK is the most fundamental but hard to demonstrate or capture. In consequence, employees know more than they articulate, while explicit OK is found in the documents, manuals, files and records of the organisation (Polanyi 1966; Nonaka and Takeuchi 1995). Arguably, in MT companies, information could define ground settings, states of affairs or difficulties, and data could depict vain themes or arguments in space and time, deprived of points of reference to either space or time. Therefore, the formation of OK is, however, dependent on a meticulous competence entrenched and enclosed in an employee's thoughts, assimilated over and done with social and organisational excursion, strategically deposited in the mind, grounded on significant practice and enclosed by old and new quests. Nonaka and Teecer (2001), Nonaka



and Takeuchi (1995) and Adesina and Ocholla (2020) state that knowledge is individual action-oriented and context-dependent.

To further understand OK, it is vital to indicate that employees' interactive developments relating to how OK surfaces are essential to the study, as suggested by Nonaka, Toyama and Hirata (2008). It is from this perspective that Frybvbjerg (2001:10) points out that substantive phenomenological studies of human learning show that employees go through different phases or stages (novice, advanced beginner, competent performer, proficient performer and expert) in the learning and acquisition of abilities or skills. Therefore, "skills" are assumed to come from technical and intellectual experience. The context is that employee interfaces create and transform OK, and OK is personal or particular, process-relational, artistic and fashioned in an exercise (Nonaka, Toyama and Hirata 2008:7).

Consequently, how OK is conveyed depends on what an employee does or what are the fundamentals for spending OK meritoriously in action in MT companies (Tsoukas and Vladimirov 2001:974). In MT companies, OK is created and put into practice or in the minds of the employees (knowers), and often turns out to be entrenched not only in documents or repositories, but also in organisational procedures, routines, processes, practices and norms (Tsoukas and Vladimirov 2001:974). It is therefore generally accepted that OK is one of the most valuable possessions in MT companies and an essential competitive pillar for success. It is worth understanding that MT companies prescribe and influence how OK flows and accessibility in KMS for KM practices. In light of that, data and information are narrowed and processed to symbolise OK. This describes the interdependence of the different types of OK (explicit and tacit) either stored in the minds of individuals or groups of employees and repositories hitherto critical for the success and competitive edge of an organisation. It is managing OK using technology that bids mutual and collective importance for MT companies in inducing innovation and addressing challenges exhibited in a KBS.

### **2.3.2 Organisational Knowledge Management**

Based on the premise above, organisational KM entails framework/models, methods and technologies (information systems) to strengthen growth and take advantage of OK for organisation competitiveness (White 2004, Nengomasha, Mubuyaeta and Beukes-Amis 2017). An organisational KM initiative involves a process accredited

with bringing new inventions from OK to improve the performance of the employees and organisation to sustain competitive pressure. The underlying theme is that managing OK is focused on several folds, for example, looking at OK as a tool to sustain commercial pressure, and highlighting employee behaviour (knowledgeable and empowered worker), as necessary for the organisation (Wiig 1999). The focus turns to the effort to improve the effectiveness of an employee to induce a competitive environment. The understanding is that the management of OK gives supremacy to both employees and the organisation to contest in competitive KBS. Chigada (2014) widens the discussion by stating that the area of KM has grown over the last two decades, compelling organisations to realise that OK and information are critical strategic tools needed to make informed decisions.

This study is therefore grounded on the proposition that, in a KBS, managing OK is critical, and the progression of an organisational KM initiative depends on organisational KMS to transmit and store OK via ICT timely. Hence, for Namibia, achieving developmental objectives and sustaining competitive pressure in KBS are crucial. Wiig (1999) suggests that managing OK using KMS is a major driving force behind the 'economics' of ideas. It is within this context that scholars expect that the emphasis on OK creation, development, organisation and leverage continues to be the prime focus for improving society. As a result, this research looks at how to locate, create, capture, store, and share the harvest of individual employee OK online in relation to generating new OK using KM strategy and facilities, as well as how to overcome established enablers and obstacles. As a result, it's important to look into the relationship between tacit and explicit OK in Namibian MT companies using KMS.

#### **2.4 Summary Of The Chapter**

This chapter discussed Namibia's history, looking at colonial legislation, telecommunication and independent legislation and policies towards a KBS. This was done to familiarise the reader with Namibia's historical discussion in relation to investigating KMS implementation in Namibian MT companies. The history of Namibia's political, historical dispensation base of telecommunication services in Namibia, as well as its legal and policy framework, were discussed in this chapter. The aim was to include the history of technology in order to recognise the foundations for the application of KM practice for social development. The chapter also discussed the nature of OK in relation to organisational KMS in MT companies by charting the types of OK and KM.

## **CHAPTER THREE: CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW: ON KNOWLEDGE MANAGEMENT SYSTEM IMPLEMENTATION IN CONTEXT**

### **3.1 Introduction**

This chapter discusses the conceptual framework and reviews relevant literature in accordance with the research objectives and questions presented in Chapter 1. This is to emphasise the critical nature of organisational KMS implementation for successful and efficient organisational KM practice. The literature review acts as a reference for determining the study's position, as well as a point of contrast for reviewing conclusions taken from the scientific literature by other academics (Creswell 2014; Wee and Bannister 2016; Tight 2019). In the aforementioned context, the researcher discussed the importance of organisational KM strategies, OK identification, creation, capture, storage, sharing and classification in relation to organisational KMS and its infrastructure to position the foundation purpose and statement of the problem of the study. These were core aspects of the study in relation to employee perceptions of KMS usability, which are conceptualised through the lens of organisational KMS enablers in Namibian MT companies. Books, journal publications and academic papers related to organisational KM, in particular organisational KMS, made up the reviewed literature. The idea was that identifying and developing ideas from related works would familiarise the researcher with current knowledge in a given field of organisational KM, in particular, organisational KMS as proposed by Wee and Bannister (2016) and Tight (2019).

### **3.2 Purpose of a Literature Review**

Creswell (2014) and Xiao and Watson (2019:93) emphasise the importance of a literature review in a study saying that it enables the researcher to comprehend the breadth and depth of current knowledge. These authors went on to say that the purpose of reviewing the literature is to identify and test gaps in the existing literature and specific hypotheses linking them to the phenomenon under investigation. In other words, a review of the literature for any enquiry serves as a reference point for the investigation (Winchester and Salji 2016; Xiao and Watson 2019). The key objective for the literature review was to contextualise organisational KMS understanding by providing context, classifying, highlighting fundamental ideas and patterns related to this study. Mhlongo (2018:28) states that a review of the literature enables the

researcher to build an awareness of the major theories, ideas, methodologies and notable academic researchers pertaining to the topic under investigation. Adopting the approach outlined above demonstrates how this study was structured to fit into the field of the KM speciality. According to Ridley (2014) and Badenhorst (2018), a literature review should demonstrate an understanding of the discourse community, subject content expertise and genre of knowledge, rhetorical competence and writing-process expertise. It is from this understanding that Ridley (2014), Winchester and Salji (2016) and Badenhorst (2018) all recommend that a literature evaluation should include the following critical components:

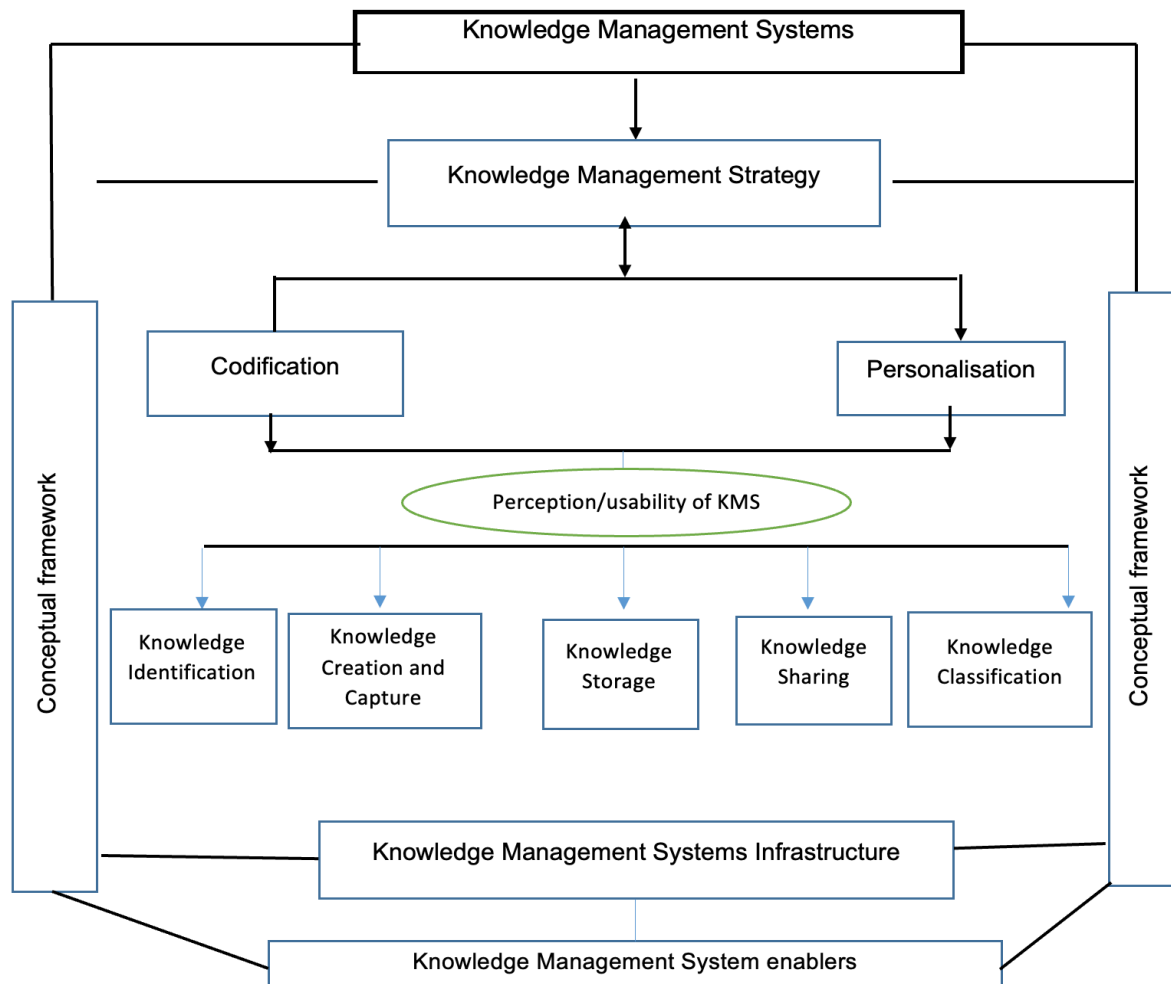
- Supporting the identification of a research topic, objectives, questions or hypothesis;
- Identification of literature to which the study will contribute, and contextualising the study within the literature;
- Build an understanding of theoretical concepts and terminology;
- Facilitate the building of a bibliography or list of the sources that have been consulted; and
- Suggest research methods that might be useful in analysing and interpreting findings.

As discussed in Chapter 1, a strong conceptual framework guided the review of the literature and the researcher's experience served as a positioning system. This was to send signals regarding the identification and discussion of concepts in relation to the problem statement, research questions and issues of data collection, analysis, and the blending of results and discussion of results. This was seen as critical support for the creation of an implementation framework, one of the recommendations for Namibian MT companies. It was thought that including organisational KMS within the implementation framework of MT companies was essential for creating and delivering an all-purpose representation of organisational KMS for KM practice.

### **3.3 Literature Review Map**

A literature map was used in this study to provide a visual representation of selected concepts and the relations between them. These concepts were driven by research objectives and the statement of the problem to enlighten the underlying study's developed conceptual framework (Figure 2). According to Chigada (2014:25), a literature review map enables the researcher or reader to deduce who conducted a

specific or comparable study. Emphasising the understanding of a literature review map, Maluleka (2017) and Passey (2020) believe that a literature review map demonstrates ideas defined in a circle or box with a link displaying lines or arrows to illustrate the connections between the concepts. The map of the literature review (Figure 2) was critical in assisting the researcher in learning more about the subject and framing presentations of organisational KMS for KM in selected MT companies. This was done in order to get a thorough understanding of current research and perspectives of organisational KM in order to interact with other academics in the area. Implementation, in the context of organisational KMS, refers to a conceived mechanism of technology, organisation, socialisation, externalisation, combination, and internalisation at the implementation level for organisational KM practice. As discussed in Chapter 1, this was in connection with KM policy, infrastructure, management support, employee attitudes, accessibility and enablers.



**Figure 2: Literature review road map for the study**

With reference to Figure 2, Basten, Michalik, and Yigit (2015); Saide *et al* (2017); Saide and Sheng (2020), and Perdana, Mujiatun, Sfenrianto and Kaburuan (2019) all

demonstrated an in-depth understanding of organisational KMS in relation to frameworks or constructs that aided Figure 2 for a comprehensive understanding of organisational KMS implementation. In that light, sections 3.4-3.8 of this study examined and drew key constructs from that logical context, in relation to organisational KM strategy, technology, individual employee usability and behaviour and KMS enablers in MT companies in Namibia. These were deemed critical components for a fruitful debate and understanding of organisational KMS implementation. The next part discusses a conceptual framework for the study and the researcher's created conceptual framework.

### **3.4 Conceptual Framework**

There is a distinction between academic debates about conceptual and theoretical frameworks. The understanding derives from the various ways in which these phrases are used in both every day and academic contexts. Ravitch and Riggan (2016) and Ngulube (2018, 2020a) provide a concise and thoughtful cautionary statement about the conceptual and theoretical framework. These scholars emphasise that an imprecise conceptual and theoretical framework weakens the consistency of the research undertaking and, when used successfully, adds to the study's rigour. In this light, Ravitch and Riggan (2016:24) observed that a failure to conceptualise and articulate the conceptual and theoretical framework as an interface destabilises a study in three ways: (a) conceptual obscurity; (b) weakened methodological arguments, or (c) a standpoint that may lead the researcher astray during empirical work. Table 2 show the differences between conceptual and the theoretical framework.

Maxwell (2013), Imenda (2014) and Adom, Hussein and Agyem (2017) define what constitutes a theoretical and conceptual framework. They do so by pointing out that, under any conceptual study, a framework serves as a structure used to explain the natural progression of a phenomenon. Therefore, a theoretical framework entails organised concepts that are used in order to clarify and explain a certain phenomenon (Passey 2020). In this study, a conceptual framework served as a structure used to explain the natural progression of concepts in relation to organisational KMS implementation in selected MT companies in Namibia. Miles, Huberman and Saldaña (2014), Yin (2016) and Ngulube (2020a) emphasise that a conceptual framework acts as a narrative formula that illustrates the link between concepts via the use of a flow

diagram. In that light, it supported the researcher in formulating and discussing problem statements and research questions, envisioned data collecting processes, sites, participants/respondents and conclusions. In this context, Ngulube, Mathipa, and Gumbo (2015) emphasise the critical importance of a conceptual framework that is reliant on the specific field.

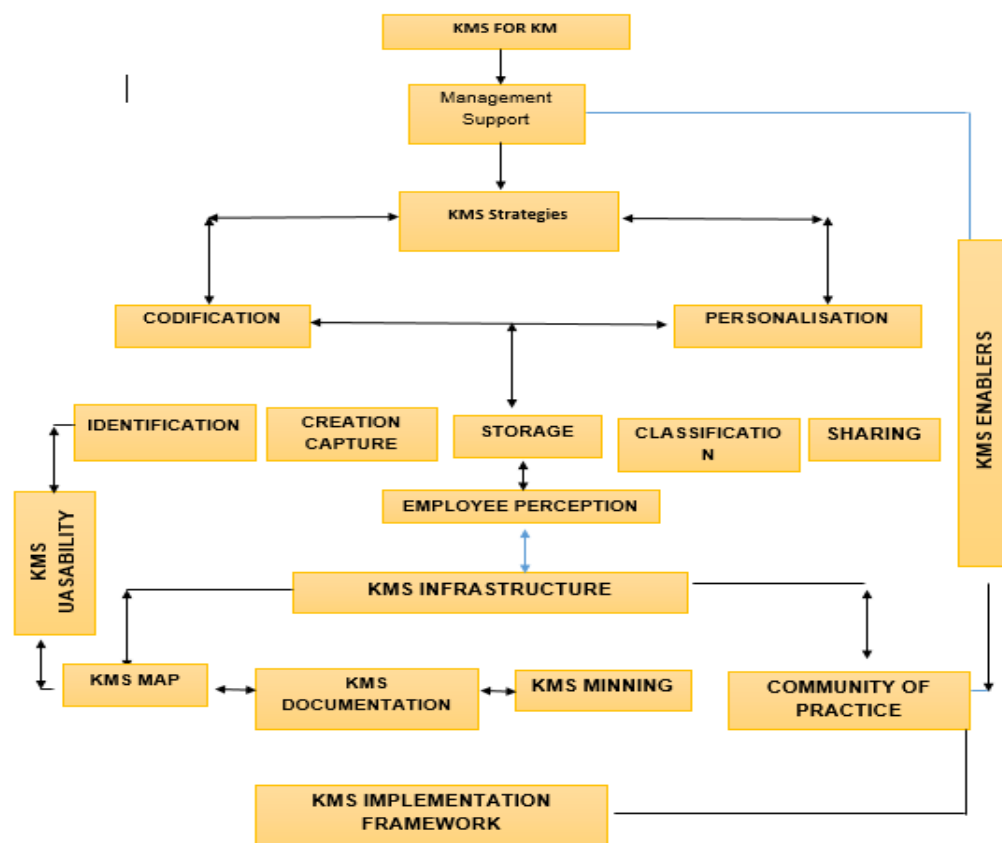
**Table 2: Difference between conceptual and theoretical frameworks Source: (Adom, Hussein and Agyem 2017:440)**

Theoretical Framework	Conceptual Framework
It provides a general or broader set of ideas within which a study belongs.	It refers to specific or narrower ideas a researcher utilises in his or her study.
It is based on existing theory/theories in the literature which have been tested and validated by other scholars.	It is based on the concepts which are the main variables in a study.
It is in the form of a model that pivots a study, with its exponents and the results of their studies.	It is a researcher's own constructed model that explains the relationship that exists between the main variables in his or her study. It can also be an adaptation of a model in an existing theory, which a researcher adapts to suit his or her research purpose.
It is well developed, designed and accepted.	Its design is not accepted, but it is a proposal of the researcher's answer to the research problem she or he has defined.
It offers a focal point for approaching unknown research in a specific field of enquiry.	It is the framework that shows logically how the research enquiry is to be undertaken.
It consists of theories that seem interrelated with their propositions deduced.	It consists of concepts interconnected to explain the relationships between them and how the researcher asserts to answer the research problem defined.
It is used to test theories, to predict and control the situations within the context of a research enquiry.	It is aimed at encouraging the development of a theory that would be useful to practitioners in the field.

It is from the aforementioned that the researcher designed a conceptual framework based on two theories, a review of primary literature and anecdotal beliefs. This was in the context of serving as a guide for the study. Concepts such as organisational KMS strategy, senior-management support, technologies and employee interpretation served as critical components of the conceptual framework for this study. These were identified as enabling factors to understand organisational KMS implementation in selected Namibian MT companies. These components were discussed in relation to

pragmatism's philosophical underpinnings (ontological and epistemological assumptions), as proposed by Creswell and Plano Clark (2018) and Ngulube (2019; 2020a).

This was in the light of gaining an enhanced understanding of organisational KMS implementation in selected MT companies in Namibia. This further was substantially articulated in terms of the study's inferences about the study's purpose, objectives, research problem, review of the literature, conceptual framework and methodology. In line with the understanding above, according to Mhlongo (2018), it is critical that the foundations of viewpoints be carefully selected in accordance with the study's purpose and addressed in connection with the problem statement and research objectives. In that context, the researcher's inclination was to investigate the significance of these ideas in connection with the implementation of organisational KMS in selected MT companies in Namibia. Figure 3 demonstrates how the assumed concepts collectively support the understanding of organisational KMS as a support of a conceptual framework for the study.



**Figure 3: Adopted conceptual framework for the study (Researcher)**

It was also critical to recognise that the concepts in Figure 3 served as mechanisms linked collectively to processes of strategy and development concerning the efficacy of the implementation of organisational KMS, as proposed by Miles, Huberman and



Saldaa (2014), Maxwell (2013) and Ngulube (2018). As stated in Chapter 1, the concepts shown in Figure 3 are discussed in sections 3.4-3.8 with a comprehensive grasp of the TOE and SECI frameworks to provide a reasonable in-depth picture of organisational KMS implementation in selected MT companies in Namibia. These viewpoints aided the researcher to connect influences from organisational KMS strategy, management support and infrastructure for a current effective understanding of organisational KMS for KM practice MT companies in Namibia. These concepts are visible in the literature, as observed by the researcher in different sections of this study. The literature also shows that the TOE and SECI models could be used as a technical way of assessing and building organisational KMS in various organisations for KM practice and MT companies in Namibia were no different. It was, therefore, used to develop consistent structures and definitions for organisational KMS in selected MT companies in Namibia as illustrated in Figure 3.

The literature on the subject focused on particular methods for improving understanding of the implementation of organisational KMS in selected MT companies, but not on software design for organisational KMS. In that light, this study took individual employees' views of what kinds of OK is acceptable in organisational KMS are context- and role-dependent, as proposed by Vuki, Bach, Inkinen, Kianto, and Vanhala (2015) and Rhem (2017). These authors continue to state that, to match the views of all employees in diverse situations of organisational KMS in relation to the objectives and strategy, they turn out to be acute subjects in implementation. The proposition which was under development was that it was critical to explore the success of organisational KMS implementation in selected MT companies in Namibia. This was based on organisational KM strategies as filtered through management support, infrastructure and employee perception in reference to Vukšić *et al* (2015) and Rhem (2017). In light of the foregoing, it was clear that MT companies are OK-intensive. Xu and Quaddus (2011) and Zhurba (2019) opine that understanding the importance of strategy, senior-management support, infrastructure and enablers is critical to effective and efficient organisational KMS for KM in organisations. This is so since knowledge in the organisational KMS ought to be easily stored, accessed shared and transferred to induce innovation or improve employee performance. Yee, Tan and Thurasamy (2019) and Zhurba (2019) present the argument that organisational KMS developments consist of efforts that capture and recycle organised OK for organisational use. Using the explanation above on the conceptual framework

provided a holistic overview in the midst of the investigation by bringing about a guiding principle for the literature review discussed in Section 3.4.

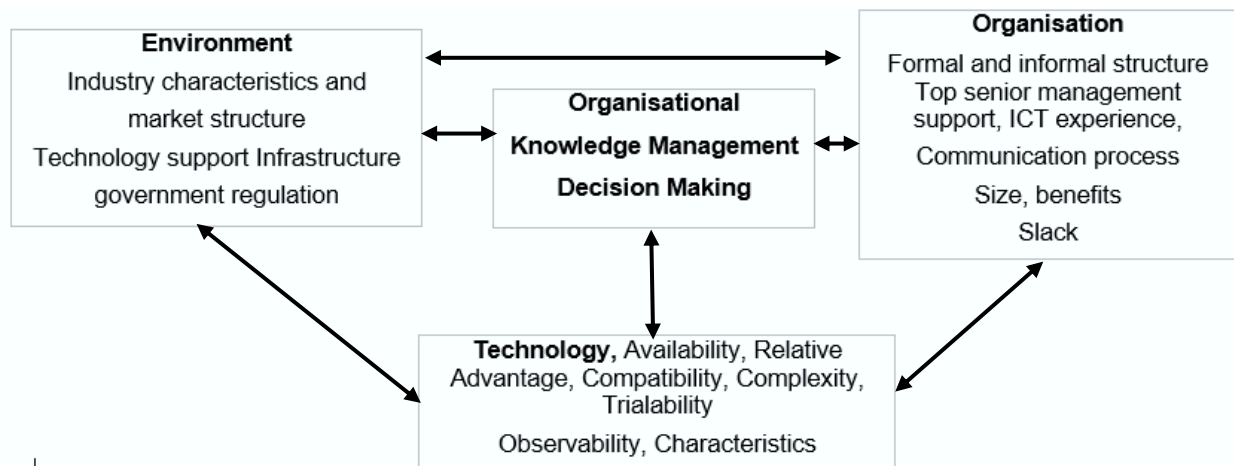
### **3.4.1 Technology Organisation Environment (TOE) Framework**

As noted in Chapter 1, an investigation of organisational KMS implementation in selected MT companies in Namibia adopted the TOE framework as Theory 1. The TOE framework uses technological, environmental and organisational fundamentals to measure organisational KMS implementation (Wolverton and Lanier 2019; Nawaz and Gunapalan 2015). Each concept in this framework had an underlying angle that served as a guide and conditioned the organisation's KMS implementation and assessment (Wolverton and Lanier 2019; Nawaz and Gunapalan 2015).

Following a thorough examination of the framework, the researcher decided on two concepts, namely, technology and organisation to aid the other side of the investigation of organisational KMS implementation in selected MT companies. According to Al Bar and Hoque (2015), the technological milieu describes both the internal and external technologies (relative advantage, compatibility and complexity) significant to MT companies about organisational KMS implementation. However, it was the internal perspective that was explored for this study, as suggested by Nawaz and Gunapalan (2015), Wolverton and Lanier (2019) and Al Bar and Hoque (2015). The organisation context looked into how resources are accessible to support the acceptance and availability of organisational KMS in MT companies (Section 3.1.2).

The study identified the primary success using these two constructs, highlighting critical elements of organisational KMS implementation for KM practice in selected MT companies in Namibia. This section makes reference to the study's second and third research goals. The fundamental impression was that the philosophical and methodological situation surrounding organisational KMS execution is contingent upon the exploration of these two distinct structures in MT companies, as suggested by Al Bar and Hoque (2015), Nawaz and Gunapalan (2015) and Wolverton and Lanier (2019). In that frame of reference and for the context of organisational KMS at selected MT companies, this framework assumes that concepts (technology and organisation) add value to required information, react to fluctuations, enable interface and collaboration among interested parties, and identify the non-determinism of organisational KMS acceptance (Awa, Ukoha and Igwe 2017:89). These writers

maintain that they put a premium on individual employee responsibilities and are cognisant of the fact that individual workers are not substitute components in organisational KMS operations for KM practice (Awa, Ukoha and Igwe 2017:89). The next section covers building technology in connection to the application of organisational KMS in selected MT companies in Namibia.



**Figure 4: Three critical fundamentals that influence organisational knowledge management systems (Source: Wolverton and Lanier, 2019:403)**

### 3.4.1.1 Technological Context

The technological context was conceptualised under the distinctive availability of organisational KMS, as suggested by Al Bar and Hoque (2015) and Wolverton and Lanier (2019). The proposition was that availability/accessibility, relative advantage, compatibility, complexity, trialability and observability of organisational KMS are constructs that underlie essential issues for understanding technology with its implemented infrastructure, as proposed by Chandna and Iusco (2018), Ghasemi and Valmohammadi (2018) and Wolverton and Lanier (2019) for MT companies in Namibia. These were the distinguishable contexts that acted as determinants of technology for organisational KMS implementation (Santoro, Vrontis, Thrassou and Dezi 2018) in selected MT companies in Namibia. Therefore, the research looked into these concepts with importance in relation to Section 3.5, to understand organisational KMS for KM in MT companies in Namibia.

The technological context was investigated in terms of easy access and availability of online systems for OK conversion within MT companies (Baker 2012; Wolverton and Lanier 2019). This construct related to perceived behavioural control (technical know-how and support) in relation to access and availability of online systems. It also

explored the perceived simplicity (making technology simple) and compatibility of systems with an existing structure, infrastructure, procedures, values and sharing of experiences within the systems) and performance expectancy (the degree to which technology is perceived as an organisational KMS (Awa, Ukoha and Igwe 2017) in MT companies in Namibia. This was an important aspect to explore. The understanding was connected to the discussion in Section 3.7 which tabulates the understanding of organisational KMS to address research objective number three.

The relationship between current technologies for organisational KMS was critical to explore in relation to the online system implementation process and establishing a thorough perimeter around the possibilities and stages of technological change that MT companies have undertaken (Baker 2012:63; Santoro, Vrontis, Thrassou and Dezi 2018). Given the foregoing, Wolverton and Lanier (2019) emphasise the importance of individual employees and the availability of organisational KMS for KM. An investigation into how employees in MT companies recognise organisational KMS implementation is therefore necessary. In light of that, the availability and exploration of applicable assistance or services are present in the marketplace for KMS for KM practice. As a result, this study extensively investigated the present procedures and infrastructure that exist inside KMS; the study also determined their success.

Basten, Michalik and Yigit (2015), Basten, Schneider and Pankratz (2017) and Awa, Otjiabo and Orokor (2017) established that organisations that proficiently exploit the difficulties of high-tech tools and display system readiness are expected to encourage innovative technologies more rapidly than those which do not show such readiness. Under the above-mentioned circumstances, the technological context under which MT companies operated needed not to be overlooked, as it was essential to determine their adoption process and use in relation to individual employees, as suggested by Basten, Schneider and Pankratz (2017). These authors continue to state that, as MT companies decided to adopt organisational KMS, it ought to centre on its online system availability and, in particular, fit contemporary (transforms the way individual employees' access and use OK), current equipment and methods and technology that supports infrastructure. This was so because labour costs, paying higher salaries, are more likely to influence individual employees as adopters and users of new organisational KMS (Basten, Michalik and Yigit 2015; Wolverton and Lanier 2019).

However, rapid fluctuations could have a serious effect on organisational KMS. For that reason, this study sought to establish the above understanding in MT companies.

The TOE framework hinged on factors that assisted the researcher to tabulate and systematise concepts such as relative online system advantages, compatibility, complexity, trialability and observability of organisational KMS, as directed by Lian, Yen and Wang (2014) and Cruz-Jesus, Pinheiro and Oliveira (2019), who discuss these aspects as follows:

- *Relative advantage*: This looked at the degree to which KMS implemented recognises superior options than the idea it succeeds (if any). Despite being measured in economic terms, social-status rudiments and satisfaction were important aspects of this study (Lian, Yen, and Wang 2014). This is so since employees have to see organisational KMS implemented from an individual employee's advantageous perspective. It was further thought that organisational KMS implemented in MT companies ought to improve operations, reduce costs and provide for easy access and retrieval of information or OK (Cruz-Jesus, Pinheiro and Oliveira 2019). Therefore, timely access to OK was critical to explore. According to Rogers (1983; 2003), a relative advantage was the most critical predictor of the success rate to organisational KMS implemented. What comes from this is that, if there are no benefits of organisational KMS implemented, there is a likelihood that employees at MT companies will not use it (Albar and Hogue 2017). However, there is inconsistency with some findings, as highlighted by Greenhalgh, Robert, Bate, Macfarlane, Kyriakidou and Peacock (2005) and Cruz-Jesus, Pinheiro and Oliveira (2019), who found that relative advantage alone does not guarantee organisational KMS success. As a result, it was critical to investigate in this study.
- (i) *Compatibility*: This explores the situation where organisational KMS implemented is seen and measured towards existent organisational values, experiments (including past), and the requirements of probable adopters (Brown, Dennis, Burley and Arling 2013). This was so that organisational KMS ought to be practical in current employees' responsibilities in MT companies for possible use (Cruz-Jesus, Pinheiro and Oliveira 2019).

- (ii) *Complexity*: Looks at the degree to which organisational KMS is perceived as relatively difficult to understand and use (Rogers 1983a, 2003b; Wang and Wang 2016). According to the literature, OK complexity and teachability increase the likelihood of result significance in online person-to-person OK transfer (Brown, Dennis, Burley, and Arling 2013:1; Cruz-Jesus, Pinheiro and Oliveira 2019).
- (iii) *Trialability*: This explores the degree to which organisational KMS may experiment on a limited basis. AlBar and Hoque (2015) and Cruz-Jesus, Pinheiro and Oliveira (2019) argue that this assists in reducing improbability before making a final decision about the final implementation of KMS. Nawaz and Gunapalan (2015) found that trialability has a definite implication for organisational KMS implementation.
- (iv) *Teachability*: It rests on the degree to which the OK can be collectively shared via organisational KMS, i.e., online training (employee-to-employee) in MT companies. The literature supports the importance of employee interface and active sharing as a resource for enhancing OK acquisition (Brown *et al* 2013; Al Bar and Hoque 2015; Cruz-Jesus, Pinheiro and Oliveira 2019).
- (v) *Observability*: This is a degree to which organisational KMS results are visible to employees, have an impact and are more likely to be adopted by other employees. Nawaz and Gunapalan (2015) found that observability implies the rating of implementation and usability of KMS in organisations. Ramdani, Chevers and Williams (2013) and Cruz-Jesus, Pinheiro and Oliveira (2019), therefore, point to observability as having an enormous implication on the adoption or implementation of organisational KMS.

The researcher was of the view that the above sub-concepts present a structure to understand the implementation of organisational KMS for KM, as proposed by Nawaz and Gunapalan (2015), Cruz-Jesus, Pinheiro and Oliveira (2019) and Wolverton and Lanier (2019). As a result, a given interval may result in individual employees' unwillingness to use the organisational KMS. Hence, it was important to examine the underlying causes that might have contributed to it. Nawaz and Gunapalan (2015)

argue that, when the organisational KMS is precise and friendly, hesitancy is lessened. The understanding drawn above was that the organisational KMS has to be accessible and compatible to address issues of complexity, trialability and observability in MT companies in Namibia. Organisational KMS constructs assisted in understanding perceived benefits, complexity and compatibility and acted as crucial factors that decisively affected the nature of how effective and efficiently implemented organisational KMS is for MT companies in Namibia. This was related to the organisational KMS infrastructure. The understanding points to the requirement for an organisational KMS implementation lens through the understanding of implemented technological infrastructure. This study undertook to explore and develop an implementation framework that took account of factors that influence individual employees' decisions in relation to a combination of the TOE and the SECI framework. This study explored these issues through research questions number one, two, three and six.

#### **3.4.1.2 Organisational Context**

According to Cruz-Jesus, Pinheiro, and Oliveira (2019) and Wolverton and Lanier (2019), organisational context for KMS depends on different KM evaluations. These include the organization's size, formalisation, centralization, complexity of its managerial structure, the number of its employees, and its available resources. These contexts consider financial resources, employee connections, and senior manager support as important aspects for the success of organisational KMS implementation. Eze, Olatunji, Chinedu-Eze, Bello, Ayeni, and Peter (2019) suggest that it is important to investigate these contexts, including internal organisational decision-making and communication as well as mechanisms for external environments. However, Lian, Yen, and Wang (2014) and Cruz-Jesus, Pinheiro, and Oliveira (2019) point out that organisational measurement characterises diverse organisational circumstances, including but not limited to sub-concepts such as top management support, adequate resources, and benefits for organisational KMS, which are also important elements to investigate.

Based on the above, one can suggest that MT companies' senior-management support could be equally important for a sound organisational KMS implementation. This is in relation to the understanding of the importance of systems to unleash the required resources (Nawaz and Gunapalan 2015; Awa, Ukoha and Igwe. 2017; Awa,

Ojiabo and Orokor 2017). With a sufficient financial plan, suitable human-resource support, and adequate time, as well as acceptable engagement from the organisational KMS, MT companies are destined for success (Nawaz & Gunapalan 2015:326). The same scholars continue to state that ICT experience influences the assessment of selected MT companies' implementation of organisational KMS for KM practice. This is related to ICT being disadvantaged by the incomplete understanding that these companies have in relation to technology that is instituted as ICT experience, which disturbs the process of implementation or acceptance of KMS (Nawaz and Gunapalan 2015:326).

Chandna and lusco (2018) and Ghasemi and Valmohammadi (2018) contend that the existence of the current organisational KMS has an impact on the implementation of a new one. In that light, the new implementation necessitates a smaller number of resources besides the current one, for example, computers, among others (Nawaz and Gunapalan 2015:326). In support, Awa, Ojiabo and Orokor (2017) established that organisations with influential support from senior management are more likely to adopt organisational KMS more rapidly than those deprived of such provision. In this context, foundations for activities that promote the primacy of organisational KMS ought to prioritise the idea of shared and assimilated systems capable of enhancing or generating innovation or MT company performance are established.

The organisational structure was deemed critical with regard to the scale of MT companies, due to the assumption that it affected a specific fierce competition for technology utilisation (Nawaz and Gunapalan 2015). In this line, Lian, Yen and Wang (2014), Chandna and lusco (2018), Ghasemi and Valmohammadi (2018) and Cruz-Jesus, Pinheiro and Oliveira (2019) emphasise that organisations ought to rely on online communication between MT companies' departmental or divisional sub-units, decentralised leadership, control, networking among employees and decisions or departments that are essential to KMS adoption and implementation. According to these scholars, formalisations such as rules, regulations/legislation, specific procedures and the hoarding inducement of organisational KMS innovation are critical to comprehending them for organisational KMS adoption and implementation. Chandna and lusco 2018 and Ghasemi and Valmohammadi (2018) show that the size and the number of employees are most vital for email benefits and mobile communications, as well as the attitude towards the use of technology if the



organisational structure decides on such features (Lian, Yen and Wang 2014; Cruz-Jesus, Pinheiro and Oliveira 2019).

However, Nawaz and Gunapalan (2015) took a different perspective, saying that structured boundary-spanning systems, requirements and opportunities for organisational KMS execution are important. These authors continue to state that transition and mechanisms for elevating information to obtain support or buy-in decisions ought to be affected by linkages and boundary-spanning frameworks in relation to organisational KMS. Richtnér and Åhlström (2010); Lian, Yen and Wang (2014) and Cruz-Jesus, Pinheiro, and Oliveira (2019) discuss the following important principles: (i) direct contact between management; (ii) establishment of liaison responsibilities; (iii) creating an ad-hoc task force; (iv) use of permanent teams; (v) creating integration roles; and (vi) slack managerial linking roles and creating a matrix form of management. This understanding has not been established in MT companies in Namibia in reference to organisational KMS for KM practice. Therefore, this study looked at these principles in relation to organisational KMS application in MT companies in Namibia.

A substantial amount of literature has been written about organisational KMS, concerning the agreements mentioned above. This literature serves as the foundation for the simplification and harmonisation of interunit claims, both of which are required to achieve both evidence of the use of mutual tools for progression, such as strategy and decision-making and technical advancement (Lian, Yen, and Wang 2014; Cruz-Jesus, Pinheiro and Silva 2014). This is, however, related to organisational contexts, informal linkages and communication, which are roles typically focused on but not formalised by organisations, although it depends on employees to acquire them, due to their interest in particular activities (Wolverton and Lanier 2019). This has not been proven in the Namibia context, in particular in management support and employee interaction with colleagues within the organisation for organisational KMS for KM practice, hence the underlying exchange of data, information and OK, as directed by Eze, Olatunji, Chinedu-Eze, Bello and Peter (2019).

It has been observed that senior management or leadership's behaviour is critical to the implementation of KMS, since the manager's behaviour underlies planning and

communication. Eze, Olatunji, Chinedu-Eze, Bello and Peter (2019) and Cruz-Jesus, Pinheiro and Oliveira (2019) suggest that it all depends on the following processes:

- (i) Developing and communicating a sharp image of the organisation's KM strategy;
- (ii) Formalising informal rewards that reinforce the use of KMS;
- (iii) Developing an innovative culture; and
- (iv) Developing and structuring a management team with technical, social and conceptual skills to work on accomplishing different KMS tasks.

In order to investigate how management support was required for organisational KMS implementation for KM practice in the context of Namibia, prior knowledge was required. According to Richtner and Ahlstrom (2010) and Al-Hujran, Al-Lozi, Al-Debei, and Maqableh (2018), senior manager support is crucial for mitigating performance variability. It influences OK creation, reduces organisational KM-goal conflicts, and promotes organization-wide behaviour. Therefore, organisations should seek to exert influence over the environment through plans, business standards, and prescribed measures for organisational KMS that address the issues (Al-Hujran, Al-Lozi, Al-Debei, and Maqableh 2018). They act as the necessity of resources and the creation of a reward system and a culture that generates a positive organisational climate for KMS implementation in organisations. This understanding shows various epistemologies which could be important in MT companies to facilitate effective and efficient organisational KMS. Hence, this study investigated these aspects and came up with reasonable, pragmatic conclusions. While the literature on senior organisational management demonstrates that the adoption of KMS execution depends, on the initiatives listed. It is also essential to examine senior-management support and size, as well as their knowledge of KM, for KMS implementation (Eze, Olatunji, Chinedu-Eze, Bello, and Peter 2019). This comprehension was applied to comprehending the perspective in relation to this study's fourth objective.

MT companies in Namibia's internal technological and organisational structures were key to understanding KMS implementation. These acted as guiding constructs in the study's developed conceptual framework, as proposed by Lian, Yen and Wang (2014), Al Bar and Hoque (2015) and Cruz-Jesus, Pinheiro and Oliveira (2019). The use of a TOE framework assisted the study in producing a proposal for data collection on the condition that it works towards the generalities of this study. A TOE framework based on a suitable organisational KMS process, evaluating the aforementioned critical

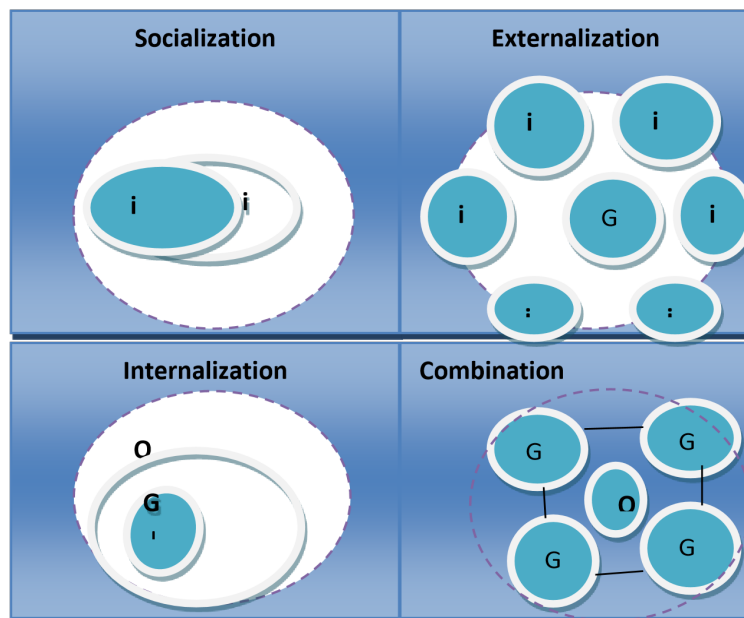
components for understanding KMS for knowledge conversion practice in MT companies in Namibia was important (Al-Hujran, Al-Lozi, Al-Debei and Maqableh 2018). However, this understanding is not fully established in the Namibian context in terms of how it affects organisational KMS implementation. So, in this study, these constructs were used to describe the existing picture in order to create a reasonable understanding of organisational KMS in MT companies in Namibia using a TOE framework. The subsequent section examines the OK conversion theory, which was used to present an alternative picture for understanding KMS implementation in MT companies in Namibia.

### **3.4.2 Socialisation, Externalisation, Combination and Internalisation Framework**

In this study, the OK conversion theory was used to categorise socialisation, internalisation, externalisation, and combination as the four modes of interaction that may allow organisational KMS in selected MT companies in Namibia. With the growth of tacit and explicit OK in MT companies, it is critical to use technology to create competitive advantage via interaction processes of tacit and explicit OK. Nonaka and Takeuchi (1995) created the SECI (socialisation, externalisation, combination and internalisation) framework shown in Figure 5. Features like tacit and explicit OK are significant to SECI via organisational KMS for KM practices under this study, as submitted by Adesina and Ocholla (2020). The processes that generate new OK or innovation, store it and retrieve it from or into organisational KMS were investigated in this study. The researcher found it useful in exploring and understanding the processes of tacit and explicit OK in the investigation of KMS in MT companies in Namibia using the SECI model in relation to employees' behaviour. The model depicts or positions organisational progression into mechanisms involved in the creation and transformation of OK via organisational KMS.

Despite the fact that this model was developed in a Japanese context, the researcher found it useful in exploring and understanding organisational KMS in MT companies in a Namibian context. In this study, the SECI model was also used since it allowed the researcher to track MT companies' organisational KMS implementation and determine how successful the approach was for KM practice. The model portrays organisational progression into mechanisms involved in the creation and transformation of OK. It does so by providing its epistemological (tacit and explicit),

ontological (position of OK collective entity for OK creation) and situational standpoint that drives OK process transformation (Adesina and Ocholla 2020; Maluleka 2017). In this context, it was via organisational KMS in MT companies that were more interested in exploring it. It was presumed that the transformation of OK from tacit to explicit is significant for the preservation of OK via organisational KMS (Adesina and Ocholla, 2020; Canonico *et al* 2020). This was in reference to how MT companies generate competitive advantage through organisational KMS. The model was used based on the understanding of OK creation and it epistemologically leaned towards the consultative implementation of organisational KMS for KM to induce innovation, performance and a competitive edge for MT companies in Namibia. Figure 5 below illustrates the identified interactions and practices associated with OK creation via KMS implementation.



**Figure 5: SECI Model** (Source:Nonaka and Toyama 2003)

Links such as those shown in Figure 5 show that “I” positions individual employees, “G” for the group and “O” for the organisation. They relate to online contacts of OK originators' employees with organisational events, culture and process within MT companies in relation to organisational KMS. SECI processes and the nature of OK are created and transformed via a dualistic *modus operandi*. This takes place when individual employees or a group create a collective tacit for explicit OK. They do so to acquire, share and build OK or experience using organisational KMS for KM practice. This progression could lead to the development of a new product or service (Adesina and Ocholla 2020; Canonico *et al* 2020). It is interesting to note that Yulistia, Ermatita and Malik (2019) suggest that SECI processes are grounded in employees' groups

(social process) with reference to technology and organisation. It was employed to demonstrate the online contact of OK that could occur. This was in reference to the activities, technology, culture and processes of MT companies that might have an impact on employees. The transformation of OK from tacit to explicit or from one form to another works towards the preservation and access of OK in organisational KMS by individual employees plays an important role (Yulistia, Ermatita and Malik 2019). Preservation of OK in MT companies ought to include all important accomplishments that are stored and the right to use OK in the system (Maluleka 2017; Adesina and Ocholla 2020).

Therefore, the SECI model necessitated a point where tacit and explicit networks produce new OK deposited into online databases and repositories for the benefit of both individual employees and enhance MT companies' performance, as suggested by Yulistia, Ermatita and Malik (2019) and Adesina and Ocholla (2020). In Section 3.5, it is argued that identification, creation, capture, classification and sharing of OK through organisational KMS are critical elements for understanding KMS for KM practices in MT companies in Namibia. Chigada (2014) and Adesina and Ocholla (2020) describe the four significant constraints of OK transformation, such as socialisation (tacit-tacit), externalisation (tacit-explicit), combination (explicit-explicit) and internalisation (explicit-tacit), which are discussed from Section 3.4.2.1 to 3.4.2.4 of this chapter. The understanding was that it is necessary for MT companies to preserve knowledge and ensure its sustainability inside the system. Therefore, identified, created, captured, shared, translated and converted knowledge should be permitted to move online from one part to the other, as suggested by Chigada and Ngulube (2016).

As suggested by Yulistia, Ermatita, and Malik (2019) and Adesina and Ocholla (2020), the SECI framework is essential to the study because it lays the groundwork for the data collection on how new OK is converted into explicit, captured into organisational KMS for KM, and retained in documents, repositories, and databases for employee use. The SECI model was utilised to achieve objectives 2, 3, 4, 5, and 6 of this study. Using the understanding of OK from Chapter 2, Section 2.3, and Figure 5, apply model assumptions to the implementation of the KMS within MT companies in Namibia. It was therefore believed that OK existed as an objective description of the world, waiting to be discovered and utilised by employees, and that it could not be contained in a

single location. It has no existence apart from employee knowledge and the social practise of learning (Adesina and Ocholla, 2020; Canonico *et al* 2020). Hence, in this study, understanding organisational KMS for KM in Namibian MT companies using the SECI framework required objective as well as subjective comprehension.

### **3.4.2.1 Socialisation**

This dimension was conceptualised to understand the process of creating OK via shared experiences using technology (Nonaka 1994; Maluleka 2017; Adesina and Ocholla 2020). A socialisation process is whereby employees share or use information or experiences through interaction via a language with other employees through informal contacts or a designed conducive intellectual environment (Nengomasha, Beukess-Amiss and Mubuyaeta 2017; Maluleka 2017; Adesina and Ocholla 2020), for example, organisational KMS in MT companies in Namibia. This requires enabling an organisational KMS-favourable online working environment where employees can meditate and discuss their experiences and ideas (Adesina and Ocholla, 2020; Canonico *et al* 2020). This is to find a common position concerning mental models of individual employees, creating an objective-driven direction (product or service).

Adesina and Ocholla (2020) hold the position that, in an organisation, socialisation undertaken heightens and activates employees to socialise and share OK through or during their interactions. It was conceptualised in relation to the role of online communication in contributing to KM practices in selected MT companies in Namibia. However, Nonaka (1994), Chigada (2014) and Nengomasha, Mubuyaeta and Amiss-Beukes (2017) present arguments to emphasise that employees also acquire tacit OK without language. This happens through observation, imitation, practice and on-the-job training (Canonico *et al* 2020). Consequently, an increase in online socialisation interaction ought to create new opportunities for OK identification and sharing within an organisation (Chigada 2014; Adesina and Ocholla 2020) via organisational KMS. In this regard, trust among individual employees engaged in sharing past or present experiences is vital, as proposed by Natek and Zwilling (2016) and Canonico *et al* (2020). Implementation of organisational KMS should be able to consider that in reference to storing, protecting and accessing OK online in a timely manner. Vuki *et al* (2015) claim that senior management serves as a stimulant for sparking, mentoring, setting an example, generating an environment of trust and respect, fostering a

creative culture, articulating a vision, listening, learning, teaching and sharing knowledge.

Therefore, online socialisation in MT companies could help employees to acquire and share their experiences (work/personal) within and across departments through the use of organisational KMS tools, such as email, videos (conferencing) and online-community of practice (Natek and Zwilling 2016). This process is thought to induce performance and innovation for competitive advantage for MT companies in Namibia. It was critical to remember that tacit knowledge is personal and subjective. OK is in the employee's head, competencies and is difficult to codify. Aiming to capture and exploit OK, MT companies ought to create strategies (see Section 3.4) on how to store OK in the database via technology. Since online interaction among employees is made easy (Giudue and Peruta 2016; Canonico *et al* 2020), online socialisation is critical for organisational KMS success to induce a competitive edge. Previous research by Tsai and Ghoshal (1998), Giudue and Peruta (2016) and Canonico *et al* 2020) indicates that the frequency of interface and the closeness of individual employee social collaboration ties among units have a significant progressive effect on OK interchange among themselves. It was important to note that individual employees' behaviours and attitudes are core to being understood as the driving force that can assist in the understanding of organisational KMS implementation (Natek and Zwilling 2016; Canonico *et al* 2020) in MT companies in Namibia.

Several lines of evidence by Yulistia, Ermatita and Malik (2019) and Natek and Zwilling (2016) show a strong connexion categorised by everyday collaboration has a durable constructive outcome on OK sharing and transfer. It is from this standpoint that this study explored how to bridge the connection of tacit into organisational KMS for KM. This was to determine how tacit OK is captured and stored in the database in MT companies in Namibia in reference to elements of organisational KMS in Section 3.5. The understanding was that, during socialisation processes in MT companies, individual employees engage in a method of sharing personal understanding between themselves, as submitted by Canonico *et al* (2020). Most organisational knowledge on which employees depend on on a daily basis is stored in their brains. In this context, Natek and Zwilling (2016) and Adesina and Ocholla (2020) suggest that developing online socialisation necessitates the process of accumulating and sharing tacit OK. To that aim, a thorough conceptual foundation for understanding organisational KMS

implementation was based on human interaction inside selected MT companies in Namibia. In that light, it was pursued via organisational KMS from the perspective of an individual employee.

### **3.4.2.2 Externalisation**

Previous research pointed out that the externalisation component encompasses the process of using a recipe of standard procedures from tacit to explicit OK (Farnese, Barbieri, Chirumbolo and Patriotta 2019; Canonico *et al* 2020). This approach defines the employee's role in more detail and integrates OK through group/meeting discussion, telephone, an online community of practice, email and video conferencing. Farnese *et al* (2019) believe that this results in the accumulation of innovative ideas that can be protected via an organisation's knowledge-management system (KMS). This leads to the conversion of tacit OK into explicit OK, a process of transforming OK into explicit OK (Natek and Zwilling 2016; Maluleka 2017; Adesina and Ocholla 2020), which is significant for OK transfer and acquisition for externalisation.

In MT companies, organisational KMS implementation and externalisation could ensure that tacit OK is captured and transferred into explicit OK stored in organisational databases, repositories for individual employees as user's retrieval, typically perceived as concept creation, as suggested by Sudtho (2018) and Farnese *et al* (2019). Externalisation is grounded in the process of employees, department or organisational dialogue and collective deliberation using installed organisational KMS. Nonaka (1994) gives an example of Honda's automobile evaluation. A process whereby tacit OK is pronounced clearly into explicit concepts, diagrams using metaphors, analogies and sketches (Natek and Zwilling 2016; Maluleka 2017; Adesina and Ocholla 2020). For example, using externalisation, Honda developed the group of employees and produced the concept of the new car, developing the metaphor of automobile evolution. Organisational KMS via externalisation concepts was perceived as instrumental in such a way via groupware emails, file sharing and conferencing discussion forums (Natek and Zwilling 2016). These were critical in understanding organisational KMS in MT companies in Namibia. Hence, this study investigated OK as externalised in MT companies in Namibia to understand the above-mentioned aspects.



It was necessary to emphasise, however, that individual employees see their experiences as personal assets in their brains (Sudtho 2018; Farnese *et al* 2019; Canonico *et al* 2020). As a consequence, disseminating this OK online may cause difficulties. As a result, online sharing should occur intentionally across corporate efforts, with employees choosing the extent to which experience or approval will be shared in or via KMS. This is a reference to the supplemental TOE technical component, which evaluated the availability/accessibility, relative advantage compatibility, complexity, trialability and observability of KMS for knowledge-management practices in selected MT companies in Namibia. It was considered essential for worker externalisation and the transfer of OK through the organisation's KM system.

### **3.4.2.3 Combination**

The process of translating explicit OK into the structure or organised deposit through organisational KMS for KM practice was critical for KMS investigation in selected Namibian MT companies, as suggested by Natek and Zwilling (2016); Maluleka (2017); Sudtho (2018); Adesina and Ocholla (2020). The process of organising data or information for the purpose of creating a new OK is logged into the system. Farnese *et al* (2019), Canonico *et al* (2020) and Adesina and Ocholla (2020) all emphasise the need for creating an alphanumeric, unique declarative OK. To illustrate the importance of organisational KMS, Farnese *et al* (2019), Canonico *et al* (2020) and Adesina and Ocholla (2020) use this construct to draw attention to the distinctive categories' product customisation, complexity and intellectual property protection, as well as how they contribute to the maintenance of competitive advantage. This is attributable to the development of novel products and services for the deployment of KMS in organisations. It was critical to explore how individual employees exchange and combine acceptable practices via electronic papers, online discussion reports and meeting and communication networks. Explanatory OK captured from internal and external sources is chosen, integrated and processed to provide more sophisticated and systematic sets of explicit OK (Farnese *et al* 2019; Canonico *et al* 2020). Examining these facets was essential for achieving objectives four and five outlined in Chapter 1.

In MT companies, the process of combination may include rearranging language in papers or combining current reports/information in order to reorganise and achieve

new OK via cooperation (Farnese *et al* 2019; Adesina and Ocholla 2020; Canonico *et al* 2020). Thus, when an individual employee participates in this process of analysing timely organisational market data, they contribute to the creation of a new product or service inside the organisation. The combination dimension, explicit OK, is gathered either internally or externally by the selected MT companies. This is then merged and updated, and the revised OK is saved and sent to the workers, departments or organisations involved, such as stakeholders, as Natek and Zwilling (2016), Farnese *et al* (2019) and Canonico *et al* (2020) suggest. By using electronic communication systems, databases and catalogues, this method of OK conversion may be accelerated. It is, therefore, critical to realise that experienced workers should communicate explicit OK with colleagues through different methods that enhance or change OK, such as computer simulation, training and observations, as demonstrated by Farnese *et al* (2019) and Canonico *et al* (2020). In that light, storing and maintaining OK demonstrates the critical nature of managing databases for prompt access through an organisation's KMS for knowledge management.

#### **3.4.2.4 Internalisation**

According to Farnese *et al* (2019), Adesina and Ocholla (2020) and Canonico *et al* (2020), internalisation denotes the learning process and acquisition of new OK by way of the reuse of tacit OK to breed first-hand tacit for explicit OK. Under the SECI model, for organisational KMS, internalisation necessitates the progression of employee OK to induce innovative products or services. In this light, Maluleka (2017:28) gives an example of an employee attending online training, mentorship, observation, collaboration and discussion, subjects that are essential for increasing the tacit OK base. This was perceived as important and the process could produce explicit OK to be deposited into organisational KMS for timely accessibility and use in MT companies. Sudtho (2018), Farnese *et al* (2019) and Canonico *et al* (2020) emphasise that electronic manuals and quintessential explicit OK are often used for internalisation, that is, computer simulations and reading manuals reduce time and cost to the organisation.

It has been conclusively shown that processes such as experience and sharing a mental model, as well as learning by doing, expose explicit OK into tacit OK. This is through verbalised and diagrammed into documents and manuals or oral organisational stories (Sudtho 2018; Farnese *et al* 2019; Adesina and Ocholla 2020).

As a result, when employees have access to a database and repositories, digital documentation assists them in reading and internalising knowledges to enhance and improve their tacit OK (performance) base (Sudtho 2018; Farnese *et al* 2019).

In all the concepts reviewed above, the process of creating new OK for a competitive-edge internalisation has to do with the crystallisation process of an organisation's departments (Sudtho 2018; Farnese *et al* 2019). This was to examine and test the realism and applicability of the conceptions produced by the self-organising team simplified and stimulated carrying out tests (Adesina and Ocholla 2020; Canonico *et al* 2020). For organisational KMS, internalisation is a critical stage, as OK ought to be preserved in an organisation for future referencing by employee(s). Exploring and understanding how MT companies capture, store and preserve was critical. This was in the sense that internalisation facilitates and motivates or persuades formal and informal online learning via discussion (Sudtho 2018; Farnese *et al* 2019).

The SECI model processes of tacit and explicit OK transformation are based on a subjective value. This occurs when knowledge is codified and condensed internally and externally into a more objective, socially shared form, resulting in the creation of new knowledge that fits organisational and consumer standards (Ichinjo and Nonaka 2006; Adesina and Ocholla 2020). As a result, subjectivity cannot be eliminated while considering the management of OK through organisational KMS. To be acceptable, an employee ought to have a subjective and objective comprehension of how knowledge works. This is significantly influenced not only by new knowledge, but also by staff's inherently context-dependent understanding of interrelationships and behaviour (Canonico *et al* 2020). A study of ICT and KM views using the SECI model demonstrates that workers have a firm grasp of the usage of ICT to support the various stages of the SECI model (Lee and Kelkar 2011; Canonico *et al* 2020). To sum up, it has been shown that employee discernment about the usage of the KMS implemented through various aspects of the SECI model is more likely to be distinct but beneficial. However, this model was used to guide a phase of understanding organisational KMS for KM activity in MT companies in Namibia.

It is apparent from Nonaka and Konno (1998) and Adesina and Ocholla (2020) that, to successfully enhance OK creation, four versions of OK, such as originating, interacting, cyber and experiencing are necessary. It originates in the process when

an employee shares feelings, emotions, experiences and mental models (Nonaka and Konno 1998). This happens during the socialisation process, when employees share their tacit OK. Through these forms of interaction, the identification and selection of specific OKs and proficiencies for a team, task force, mental model and skills are transformed into standard terms and concepts via dialogue (Nonaka and Konno 1998). Thus, it occurs at the externalisation stage, turning implicit OKs into explicit OK. On the other hand, cyber 'Ba' is virtual/effective for the environment or space, for employee interaction using KMS tools such as teleconferencing or employee group support systems (Nonaka and Konno 1998; Adesina and Ocholla 2020). Exercising Ba is a type of internalisation training that involves working with mentors and co-workers to induce learning by continuous and uninterrupted employee self-filtering (Raier 2007; Natek and Zwilling 2016; Adesina and Ocholla 2020; Canonico *et al* 2020).

Based on what was highlighted in the study's conceptual framework (Figure 3), the researcher concluded that the influence of the quality of organisational KMS is dependent on the SECI model's online identification, creation, capture, sharing, storage and classification of organisational knowledge. The TOE and SECI frameworks were regarded as guidelines that propose components and give the necessary advice to comprehend individual employee's behaviour, organisational and technological enablers and barriers that impede the success of organisational KMS implementations (Canonico *et al* 2020).

### **3.5 Literature Review on KM Strategy for KMS**

The prevalence of know-how in selected MT companies demonstrates the critical need to examine an organisation's KM strategy in order to ensure an organisation's KMS is effective and efficient. The KM strategy is aligned with the organisation's KMS for KM practice in order to achieve a necessary competitive advantage and to improve employee performance, as suggested by Thang and Tuan (2020). The success of organisational KM operational approach is determined by the organisation's strategy. Without the strategy of MT companies, organisational KM creativity would fail to achieve the desired results (Saide *et al* 2017; Thang and Tuan 2020). The organisational KM plan outlines the complete methods that an organisation intends to use. It does this by aligning an organisation's KMS with its relevant assets and capabilities in accordance with the approach's conceptual criteria (Saide *et al* 2017;

Özlen and Handzic 2020). The basic assumption in this context was that MT companies would face technical difficulties as a result of adopting organisational KMS without a plan. The understanding was that, without addressing or recognising strategy, employee behaviour, attitudes, processes and culture as a potential facilitator that feeds organisational KMS implementation, the entire synthesis of the strategy for establishing successful KMS for KM practice is undermined.

It has previously been said that, without the influence of a strategy, implementing organisational KMS is tough, hard, demanding and complex (Natek and Zwilling 2016; Saide *et al* 2017; Canonico *et al* 2020). This occurs when the KM strategy is not conceptualised in connection with the organisational KMS (Natek and Zwilling 2016; Thang and Tuan 2020). This issue is compounded by a lack of research demonstrating the value of using an organisational KMS for KM processes in an application system (Agrawal 2020). From the conceptual framework outlined in Section 3.3, Figure 3, in connection to an organisational KM viewpoint, more specifically, the deployment of an organisational KM system in selected MT companies. The framework served as a roadmap for implementing an organisation's KM system in order to ensure effective and efficient KM practices. The underlying assumption was that tactics and interventions addressing the process of KMS implementation are contingent on ongoing negotiation with the underlying organisational structures, cultural settings and systems that help to sustain them (Natek and Zwilling 2016; Thang and Tuan 2020). Confronting these traits often meets resistance and retaliation from individual employees (Özlen and Handzic 2020).

The organisational KMS strategy may be seen as the selection of a subset of distinct information-system capabilities (allied to organisational guidelines). This relates to the continuation of organisational KM efforts (knowledge creation, transfer and application; Tounkara 2019; Thang and Tuan 2020). This is based on the approach's conceptual request to close the recognised OK gap between what an organisation should know to accomplish its objectives and what it wants to know (Thang and Tuan 2020; Jackson, Shen, Nikolic and Xia 2019). Individual employees, as users of organisational KMS, show a significant preference for usage, when necessary, OK is easily accessible online, according to Basten, Schneider, and Pankratz (2017), Zhang (2017) and Özlen and Handzic (2020).

According to the researcher' anecdotal postulation, MT companies' failure to adopt organisational KMS for knowledge management may be attributed to a lack of a discernible KM strategy and structures. Given that OK operates via both tacit and explicit mechanisms, it is believed that the organisational KMS strategy should reflect or react to both processes. This was believed to aid in strategising the deployment of KMS in selected MT companies to ease knowledge management. The absence of directed KM principles, especially an organisational strategy for KMS adoption, seems to be an impediment to KMS development (Thang and Tuan 2020). According to Natek and Zwilling (2016) and Basten, Schneider and Pankratz (2017), this condition of undertakings seems to imply an admission of organisational KMS' significant contribution to KM practices or socioeconomic growth. In order to overcome this, Namibian MT companies should be inspired by a contextualised scientific knowledge of the barriers to KMS adoption. When organisations lack significant scientific and organisational KMS, they are unable to strategise and manage their operations effectively and efficiently, resulting in less innovation and a weakened competitive edge, as suggested by Basten, Schneider and Pankratz (2017) and Thang and Tuan (2020), which could benefit Namibia's socioeconomic development.

As previously stated, organisational KM techniques, as defined by Bosua and Venkitachalam (2013), Ouriques, Wnuk, Gorschek and Svensson (2019) and Zlen and Handzic (2020), stress codification and personalisation as approaches to knowledge management. These approaches stress the critical nature of establishing and executing a unified strategy before adopting an organisational KMS. Additionally, these techniques aid in the mapping of KM processes and the development of a comprehensive plan for adopting KMS inside an organisation. Individual workers, physical assets and financial resources are all included in that reference, which results in the identification, creation and exchange of OKs, as well as the management of OK use through the KMS for KM (Wang, Olayinka, Zhang and Shi 2016). Taken together, these components provide guidance on how a company can implement a KMS for knowledge management (Wang, Olayinka, Zhang, and Shi 2016; Özlen and Handzic 2020) in order to foster innovation and improve employee performance. Developing an organisational KM strategy, one might argue, is a factor influencing the effectiveness of organisational KM systems for KM activities in MT organisations.

Workers are considered to be both producers and consumers of organisational knowledge owing to the way they construct various organisational knowledge equations to foster innovation via the use of technology. Thus, understanding organisational KMS within the context of MT companies, KM strategies aided the researchers in determining how implementation impacts the system's overall efficacy and efficiency (Özlen and Handzic 2020).

Organisational KM strategy, which is typically guided by KM policy, presumably simplifies OK creation and transformation by leveraging databases and electronic reports in conjunction with wearable technology (software that superimposes the system's ability for the employee to retrieve, access and transmit/share OK within an organisation's units or departments; Ouriques, Wnuk, Gorschek and Svensson (2019), Wang and Wang (2016), as well as Zhang (2017) emphasise the need of incorporating structures such as OK repositories, maps and collaborative tools within an organisation's KM strategy. The advantage is built on a strong technology-assisted framework that ensures best practices for recognising, generating, collecting, preserving and distributing employee OK harvests. This is to generate fresh creative ideas and make good organisational choices (Özlen and Handzic 2020). This research facilitated such understanding, and it impacted future debates on organisational KM systems in terms of identification, creation, capture, sharing, storage and classification. This was in connection with organisational KMS for KM practice, as shown in Figure 3 conceptual framework.

According to Orenka-Rogla and Chalmeta (2017), Zhang (2017) and Thang and Tuan (2020), an organisation needs to develop an organisational KM strategy in order to design an effective organisational KMS for KM practice. These authors above demonstrate why senior management should examine its organisation's OK underlying core and how OK can be leveraged as a key organisational product that promotes innovation via the use of organisational KMS. As a consequence, the researcher's well-considered foundations for understanding a KM strategy/methodology should be properly linked with and comprehended within the context of the organisation's plan. According to Andriani, Samadhi, Siswanto and Suryadi (2019), the implementation of KM strategies should be centred on a particular plan that is aligned with both the criteria used to describe current business

characteristics. When organisations focus exclusively on a single strategy, it becomes simpler to identify and prepare for supporting facilities and infrastructure needs. This is a reference to the current organisational understanding inside the framework of MT companies senior management as strategists, individual employees as users, infrastructure and enablers, entailing the future of organisational KM systems (Özlen and Handzic 2020). As shown in Figure 3 MT companies may select between a codification or a personalisation approach for successfully implementing an organisational KMS for KM practice.

As mentioned before, it is necessary to realise that the organisational KM strategy investigates a new way of managing OK inside an organisation, such as MT companies in Namibia, through organisational KMS for KM practice (Özlen and Handzic 2020). This enabled the researcher to project the conditions under which an organisation's KMS implementation demonstrates both positive and negative usability by individual employees in relation to its KM strategy (Ouriques, Wnuk, Gorschek and Svensson 2019; Tounkara 2019; Özlen and Handzic 2020). Given the complexity of KM, researcher believe that establishing a strategy it is critical to its success because it necessitates codification and personalisation based on a corporate culture via a consistent course of action that describes the activities required and how the organisation's KM capabilities can be integrated into a cohesive whole (Tounkara 2019; Özlen and Handzic 20). However, developing a KM strategy for organisational KMS capable of converting organisational data to strategic information is one of the most important challenges companies have faced in recent years (Ciampi, Marzi, Demi and Faraoni 2020). It was essential for this research to understand these dimensions with respect to MT companies, because senior management makes sound judgments based on a strategic emphasis on the organisation's investment in KMS (Zhang 2017; Ouriques, Wnuk, Gorschek and Svensson 2019; Tounkara 2019).

Thus, it was critical to realise that adopting organisational KMS should be guided by the organisation's KM strategy which should be backed up by senior management, a plan and a budget (Ouriques, Wnuk, Gorschek and Svensson 2019). Managers should approach the creation of the Chief OK Officer (COK) role with this viewpoint in mind. The COK Officer would help in the facilitation of the OK strategy plan, taking senior-management support, organisational culture and infrastructure into account, with a



primary emphasis on OK identification, categorisation, sharing, transfer capture and storage. Thang and Tuan (2020) extend the definition of codification and personalisation as critical components in the construction of organisational repositories of acceptable behaviour and the promotion of acceptable behaviour sharing through the employee-to-employee method referred to as *personalisation*. Özlen and Handzic (2020) substantiate this by stating that systematisation organisational procedures are being adopted in order to organise properly.

Codification and personalisation are oriented towards organisational KMS for KM practice in this research. This is intended to concentrate on managing OK electronically while also taking into account the social elements of OK. The understanding indicates that organisational KM strategies (codification and personalisation) have an effect on innovation, employees and organisational performance (increased innovation capability) in a direct and indirect manner (López-Nicolás and Mero-No-Cerdán 2011; Bolisani and Bratianu 2018). Despite these reasons, progress and commitment to resolving organisational knowledge management (KM) issues have been inconsistent and unequal (Bolisani and Bratianu 2018; Özlen and Handzic 2020). Due to the fact that the difficulties connected with organisational KM strategies for KMS are deeply ingrained in organisational culture, structure and individuals, this study becomes important.

### **3.5.1 Codification and Personalisation Systems**

Adeinat and Abdulfatah (2019) caution that establishing an organisational KMS for the KM process has proven to be a challenging job for many organisations. This occurs when an organisation fails to include either codification or personalisation in its KM systems. From this vantage point, the management of an organisation's KMS implementation should be guided by codification or personalisation systems. Individual employees and senior management from various phases of the organisation's KMS implementation help in the execution of these initiatives.

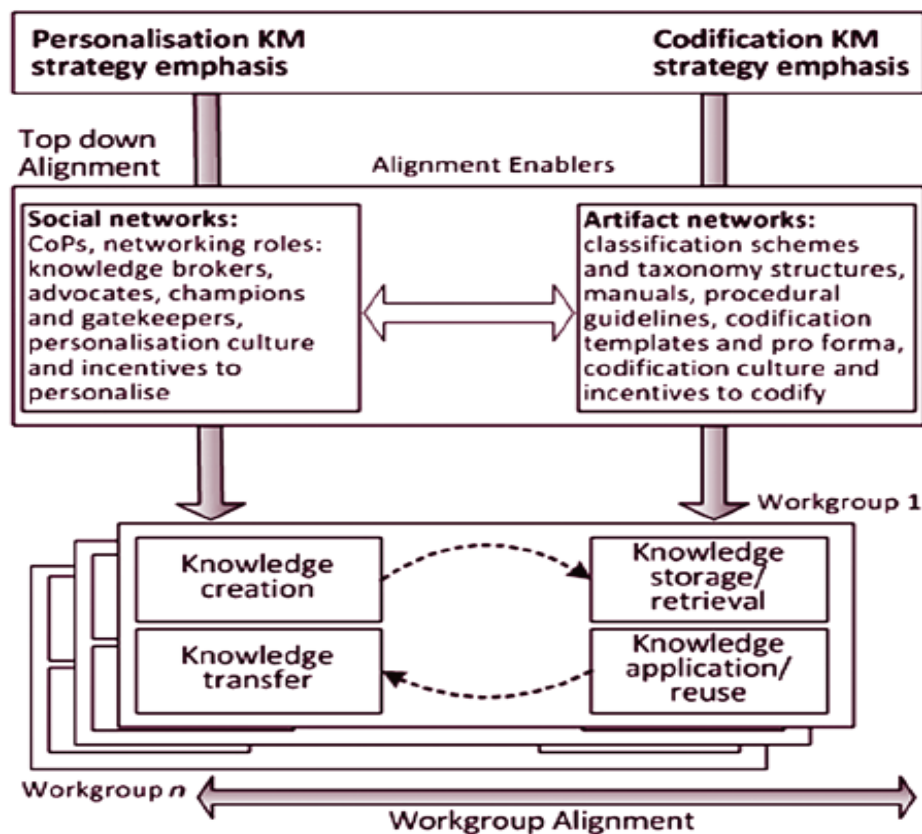
Codification and personalisation of learning seem to be important for obtaining a competitive edge and enhancing employee performance. Thang and Tuan (2020:40) assert that codification methods depend on technology, structures and procedures to

describe and codify an organisation's knowledge and experience, effectively transforming tacit knowledge into explicit knowledge. The authors continued by stating that the purpose of this strategy is to create a knowledge repository or database inside the organisation. As a result, all employees may easily access, search for and acquire the knowledge they need for their jobs without contacting the original author. In comparison, a personalisation strategy emphasises interaction and direct knowledge sharing among an organisation's workers. This study explored the use of online face-to-face encounters to transfer information in this manner. This methodology is focused on the development of social networks inside teams, which may occur via mentoring or internship processes (Thang and Tuan 2020:40).

Therefore, online codification and personalisation (illustrated in Figure 6) were perceived in this study as a founding part of the understanding of technology for organisational KM practice in selected MT companies in Namibia. This was in reference to the careful codification and electronic storage of explicit OKs with these institutions. This process takes cognisance of the fact that harvesting tacit OK from individual employees (who are regarded as the fountain of tacit OK) hinges on an organisational KMS implementation strategy. This process supports identification, connection and capture, as well as storing information for accessibility and retrieval for the benefit of the employees and the organisation, as suggested by Ouriques, Wnuk, Gorschek and Svensson (2019); Basten, Schneider and Pankratz (2017); Bolisani and Bratianu (2018); and Özlen and Handzic (2020). In this study, therefore, these were important phases in relation to exploring organisational KMS implementation thought to support the use of OK in MT companies in Namibia in relation to personalisation and codification strategies.

The SECI and TOE frameworks were used to examine personalisation and codification in selected MT companies in Namibia. Processes for transforming OK into various stages using the technology that has been implemented (Basten, Schneider, and Pankratz 2017; Bolisani and Bratianu 2018; Ouriques, Wnuk, Gorschek, and Svensson 2019) in selected MT companies for organisational KMS for KM practice were essential to explore. Individual employees' online access to OK was determined by the strategy that has been implemented. Collective online codification includes electronic manuals, spreadsheets, decision-support systems and procedures that

support organisational KM practices as important concepts of organisational KMS. According to the above understanding, employees of MT companies may find it difficult or time-consuming to express tacit support in this line. Thus, it was vital to determine if MT companies have techniques in place for determining the organisational KMS' suitability for a particular purpose; practicalities that may allow the codification of OK in MT companies when required or practicable (Basten, Schneider and Pankratz 2017; Ouriques, Wnuk, Gorschek and Svensson 2019). It was important further to note in this study that KM failures in many organisations are attributed to not defining goals and strategy before implementing organisational KMS (Dayan, Heisig and Matos 2017; Santoro, Vrontis, Thrassou and Dezi 2017). To bridge potential challenges, Figure 6 displays the possible position of the KM strategies to be adopted for an effective and efficient organisational KMS.



**Figure 6: Codification and personalisation strategies** (Source: Bosua and Venkitachalam 2013:332)

According to Bosua and Venkitachalam (2013:333), Figure 6 depicts the position of the KM approach and employees' workgroup KM processes in organisational knowledge management, along with the importance of online OK identification, creation, classification and storage. Additionally, the illustration depicts the

relationship between enablers' positions, organisational knowledge growth and employee workgroups. Ouriques, Wnuk, Gorschek and Svensson (2019) substantiate this view by stating that an organisational KM strategy directs the organisation in determining the kind of organisational KM infrastructure and senior-management support needed in MT companies. This insight was critical in untangling problems with organisational KM systems in selected MT companies in Namibia.

According to Canonico *et al* (2020), personalisation underscores the importance of online social systems for effective and efficient organisational KMS for KM practice. As a result, the SECI model was used in this investigation to unravel the online social aspects of organisational KMS for KM practice. Bolisani and Bratianu (2018) and Özlen and Handzic (2020) investigated specific social aspects of employee relationships in relation to the quality and usage of OK by presenting relationships inside or outside the organisation. According to the findings, the technical position in relation to the organisational KMS was critical and the social aspect was emphasised to be further explored. López-Nicolás and Merono-Cerdán (2011) and Ouriques, Wnuk, Gorschek, and Svensson (2019) opine that having a discourse among workers to build and alter OK is crucial to understanding usability in relation to the social aspect. However, Adensina and Ocholla (2020) emphasise that it becomes critical when expert contact is involved. These authors continue to state that the SECI model appears to be applicable to almost all organisations, and organisations should place a greater emphasis on this method of online knowledge exchange. Canonico *et al* (2020) argue that there are circumstance in which OK (tacit OK) is linked to the employee who possesses and transmits it through online face-to-face contact. In terms of sharing, understanding organisational KMS implementation for KM practice was critical for any study.

Codification and personalisation of OK have an objective impact on KM processes if organisational KMS is referenced. These methods streamline the identification, generation, capture, storage, sharing, and classification of OK and lenses in KMS warehouses, maps and collaborative platforms (López-Nicolás and Merono-Cerdán 2011; Wang and Wang 2016; Canonico *et al* 2020). Natek and Zwilling (2016) offer an organisational KM lens for these processes, based on their views of organisational KM systems. The following sections discuss aspects of identification creation, collection, sharing and classification of OKs in order to gain a better understanding of individual

employee usability and perceptions of organisational KMS (Özlen and Handzic 2020; Canonico *et al* 2020), which are discussed in sections 3.5.1 to 3.5.5, as critical KMS elements.

Despite the importance of the foundations of organisational KMS mentioned before, there are a few studies in the current literature that examine the relationship between organisational KM techniques for KMS implementation, the innovation and performance of MT companies. In this context, the study's premise was that OK is socially created and may develop via the interaction of technological and organisational components. Therefore, organisational KMS for KM methods in MT companies are reliant on both technical information and social components that are intricately connected. Basten, Michalik and Yigit (2015), Basten, Schneider and Pankratz (2017), Ouriques, Wnuk, Gorschek and Svensson (2019) and Özlen and Handzic (2020) all suggest that aspects of organisational KMS are contingent on socio-technical concerns about the notion of what is acceptable. This, however, has not been investigated in Namibia's selected MT companies. Thus, in this study, the process of organisational KMS implementation was based on three layers: organisational, technological and OK conversion. There are also two important aspects that enhance communication namely infrastructure and info-structure. In this case infrastructure refers to the hardware/software that authorises or enables physical communication between employee networks within or outside of MT companies. Info-structure refers to the organisational regulations or guidelines that govern the permissible exchange of information between employees on the network under the condition that a group/set of cognitive resources (metaphors, common language) are used by each employee.

These processes mentioned above were important to measure in MT companies in Namibia. This was in relation to the online identification, creation, capture, storage, sharing and classification of OK via KMS with regard to the research objectives in Chapter 1. For that reason, the understanding of the researcher was that selected MT companies in Namibia need to be able to induce innovation and achieve better performance for individual employees and organisations via technology. Organisational KMS should promote procedures and activities of online identification, creation, documenting, sharing and transfer of OK in relation to internal and external factors that enhance MT companies. Natek and Zwilling (2016) and Cruz-Jesus,

Pinheiro and Oliveira (2019) support this understanding by stating that a successful and practical approach to the implementation of organisational KMS enables organisations to be able to support online capture, share, store and integrate OK online. This process hinges on organisational KM policy, team, the establishment of KM strategy, performance OK assessment and audit, performance technology assessment, developed implementation plans and measurement systems.

Organisational KMS problems need a thorough investigation that is aimed at the comprehension of personalisation and the codification of OK (Natek & Zwilling 2016) within an organisation. A practical approach could be used to develop a practical understanding regarding knowledge management depending on organisational KMS. In relation to the first objective, this study looked at how the implementation of a KM strategy for KMS in selected MT companies in Namibia affected employee engagement during the online creation, storage, capture, sharing, and classification of OK for KM practice.

### **3.6 Literature Review on Strategies for Managers and Support Knowledge Management Systems**

The primary goal of adopting an organisational KMS is to improve the effectiveness and efficiency of managing relevant OK for timely access and use within the organisation. The strategies and interventions used to address these processes are constantly negotiated with underlying organisational structures, cultural contexts and technology (Ouriques, Wnuk, Gorschek, and Svensson 2019; Özlen and Handzic 2020; Basten, Schneider and Pankratz 2017). As a result, controlling these traits often requires senior management to comprehend employee resistance from the viewpoint of the particular employee (Özlen and Handzic 2020).

Senior management was seen positively in this research as a good starting point for establishing a more in-depth knowledge of departments within MT companies in terms of organisational KMS. This is because organisational KM serves as the technological focal point for using online knowledge assets generated within MT companies' activities and sources in order to guide implementation and improve outcomes. The assumption was that organisational KMS could be guided by the organisation's KM strategy in connection with senior management, who are responsible for assisting in

the execution of the company's strategic roadmap and the aim of becoming an online learning organisation (Basten, Michalik and Yigit 2015). In this context, it was believed that the efficiency and sustainability of KM activities are dependent on the organisation's KMS delivering consistent and competent guidance. This helps to facilitate the development of tools and methods for KMS and organisational learning. Kianto *et al* (2017) discuss the critical role that knowledge-friendly leaders have in an organisation's KM process as well as the importance of knowledge-based learning and development activities for improving market performance.

To get a better understanding of senior managers' views on organisational KMS, one must first create one of these “cultural and behavioural problems.” This is because it is thought that combining online learning techniques with organisational KM systems would improve the performance of MT companies' workers. Thus, it was critical to examine the developed plan through the lens of senior management in relation to organisational KMS in order to monitor the implementation and progress of existing and new learning strategies, identify areas of weakness and provide guidance and instruction to improve the company's employee and MT performance. As a key resource, an organisation's knowledge management and learning strategies should be built on its internal capacity for creating and implementing knowledge-management and learning techniques. According to Zaim, Muhammed and Tarim (2019), managers responsible for KM implementation in their companies should look for methods to encourage workers to make better use of their current personal and organisational knowledge.

Despite that, Özlen and Handzic (2020) suggest that there is a significant degree of overlap between codification and personalisation as organisational techniques for organisational KM systems. Condensing the organisational strategy components of codification and personalisation down to organisational KMS in relation to KM support was critical in this study. Support from senior management should be in place to ensure that KM systems are used to support KM practices specific to individual workers. The underlying premise was that providing managers with a greater grasp of how their work procedures impact individual workers' performance and creativity is essential to the success of the organisation's KM system (Orenga-Rogla and Chalmeta 2017; Canonico *et al* 2020). It was described as a consequence of the need

to externalise online tacit OK and preserve such externalisations in electronic archives for easy retrieval, which are shared and disseminated among MT companies through an organisation-wide KMS with management assistance.

In any organisation, KMS promotes collaborative use, codifies and communicates best practices, and establishes directories/catalogues or inventories of permitted actions (Eze, Olatunji, Chinedu-Eze, Bello, Ayeni and Peter 2019). Choi (2002) believes that managers should adapt their KMS techniques to the specific characteristics of their teams. This is accomplished via the effective implementation of systems that identify, classify and codify pre-existing internal capabilities in order to achieve a greater degree of OK. It was dependent on top management support and dependable networks that allowed individual employees to rapidly and readily communicate and exchange online information in this research (Alavi and Leidner 2002; Orenge-Rogla and Chalmeta 2017). From a senior-management viewpoint, the lens through which organisational KMS implementation should be seen and envisioned is critical. The contribution of senior management and the establishment of online systems to support OK management in the context of employee impression identification, development, capture, classification and sharing systems may enable individual workers to utilise KMS services to fulfil their responsibilities. This has been shown to be a key component that must be handled in connection with online authorisation and the storing of pertinent data for fast retrieval and exchange by MT companies. According to Zaim, Muhammed, and Tarim (2019), organisations should prioritise all organisational KSM for KM procedures, including online OK creation, sharing, capture, and exploitation. This is to improve the efficacy of knowledge management which will eventually result in enhanced competitiveness and organisational performance.

Through procedures that allow direct knowledge deposits and sharing, as well as the availability of online materials, individual workers may engage in direct knowledge deposits and sharing. Collaboration, dynamism and trust (depositing OK into systems), all of which are contingent on individual employees' trust, are critical for a successful organisational KMS in terms of senior-management support (Orenge-Rogla and Chalmeta 2017). Making OK accessible freely online for organisational processes may foster innovation and provide MT companies with a competitive edge. This should be accomplished via top management's encouragement of individual workers involved in



different stages of planning and execution. Eze, Olatunji, Chinedu-Eze, Bello, and Peter (2019) and Orenge-Rogla and Chalmeta (2017) emphasise the need for top management to implement, support or champion these critical aspects to ensure the effectiveness of an organisation's KMS functioning. These writers continue to assert the need for timely exchange and accessibility (individual workers should be motivated or encouraged to trade and share valuable organisational information) as well as sociability (KMS ought to have a level of social integration for an online community of practice). This knowledge was deemed critical since it provides a context for the significance of organisational KMS implementation characteristics in this research. The following section describes the most widely used typologies of organisational KMS for KM activities as entry methods for manager support.

### **3.6.1 Implemented Organisational Knowledge Identification Systems**

Implementing organisational KMS in relation to OK identification is important for timely electronic identification of OK in an organisation. According to Saide *et al* (2017), the identification of OK, senior management, experts and online management are highlighted as a key driver of managing OK in an organisation. This process rests on a constant endeavour, supported internally by senior management and an installed organisational KMS for OK conversion and storage. The goal is to advance employee relations and electronic identification of OK in order to improve its management in the organisation and to induce a competitive advantage. As such, the first step to crafting an assimilated model is to understand how individual employees engage in the arrangement and use of systems in relation to online profiling and OK, as proposed by Zhang (2017). Literature by García-Sánchez, García-Morales and Bolívar-Ramos (2017), Ortiz, Donate, and Guadamillas (2018) and Tounkara (2019) suggests that knowledge identification could form a vital initial implementation process in MT companies to find stored knowledge and experts and get knowledge from them. It is important to note that senior management support for individual employees' knowledge of electronic identification that is classified as critical knowledge not readily available is a challenging task, as proposed by Zhang (2017) and García-Sánchez, García-Morales and Bolívar-Ramos (2017). Using experts (internal and external), exit interviews and project reports could be examples of success and ought to be explored, as suggested by Saide *et al* (2017) and Ortiz, Donate and Guadamillas (2018). This process also assists individual employees in locating experts around the organisation

whom other individuals or groups of employees could exploit. Hence, to understand how important OK identification systems are for organisational KMS implementation, this study was influenced in two important ways: (a) how individual employees of MT companies in Namibia synthesise new OK via online socialisation with other individual knowledgeable employees; and (b) online identification by finding motivating configurations in observation, typically embodied in explicit data, championed by senior management, as suggested by Becerra-Fernandez and Sabherwal (2015:194).

Connell, Klein and Meyer (2004), García-Sánchez, García-Morales and Bolívar-Ramos (2017), Ortiz, Donate and Guadamillas (2018) found that the most challenging aspect of OK identification of the OK content is the employee perception and dimension of its transfer. These authors further state that description methodologies of OK identification could enable an understanding of the formation, transformation, and dissemination of OK in organisations. In this study, the common understanding was to link this concept in relation to organisational KMS via KM in MT companies in Namibia in relation to senior-management support. This was to assist with research objectives in Chapter 1 and formulating an implementing the framework in Chapter 7. The understanding is that the progression and practices of organisational KMS have a far-reaching significance when it comes to senior-management support and approval for MT companies in Namibia (Natek and Zwilling 2016; Adensina and Ocholla 2020). The understanding was that, where individual workers' commitment is based on the backing of top management and the organisation as a whole, organisational KMS could be successful.

As a result of the foregoing, many organisations ought to see the need to engage in the implementation of organisational data-processing systems to provide a graphical perspective of information to create OK for easy access, identification and use (García-Sánchez, García-Morales and Bolívar-Ramos 2017; Ortiz, Donate, and Guadamillas 2018). Even if OK is tangible, finding a strategy during implementation for effective and efficient use of organisational KMS to identify OK as a strategic resource is important for any organisation using technology in relation to senior-management support (Almoawi *et al* 2019). MT companies ought to find ways to get a handgrip on how to craft it, store, and access and share it efficiently from an online-identification perspective. Reference is made to Wu, Ming, Wang and Wang (2014), who argue that

the organisational OK-identification process for organisational KMS is an important factor for KMS implementation for effective and efficient use of the systems. This process heavily depends on experienced management support in place within an organisation (Almoawi *et al* 2019). To assist MT companies with the identification of databases and data mining (section 3.6.6) and web content mining in relation to online identification via organisational KMS are tools that senior management ought to champion.

It is from this perspective that expert systems ought to be adopted and implemented in relation to online OK identification. This process is in consideration of issues such as exit interviews, conference reviews, establishing the availability of accounts and repositories and how OK was turned into explicit OK (extracting online video recorders and documents) as important tools to explore (Becerra-Fernandez and Sabherwal 2015). This situation is determined by an individual expert's willingness to deposit OK into systems (Saide *et al* 2017). The process depends on senior-management support and comprises three measures, such as cluster analysis, text recognition and knowledge expertise for organisational KMS. This process analyses and extracts OK and OK illustration ontology, which is made of the following six sets: know-what, know-why, know-how, know-who, know-where and know-when (Wu *et al* 2014:5; Saide *et al* 2017).

Arguably, the procedure outlined above might result in efficient use of OK online to stimulate innovation and increase personnel capability and organisational success. If so, that would require MT companies to provide a method for online collection and codification of information that provides permission for future references to individual workers' viewpoints. Garca-Sánchez, Garca-Morales and Bolvar-Ramos (2017) propose that the OK identification strategy aids in understanding the promotion of online identification barriers and proposes a solution for effective knowledge storage and repositories. The SECI model is used to illustrate how OK identification becomes a vital process when it is recognised, created/processed or changed into new OK (Natek and Zwilling 2016; Adensina and Ocholla 2020).

García-Sánchez, García-Morales and Bolívar-Ramos (2017) and Escrivão and Silva (2019) present arguments to emphasise that OK depends on positions and responsibilities which employees occupy. Therefore, employee perceptions of being

in a different position to satisfy organisational KMS goals and plans are different and important to explore. This means that online identification systems ought to be driven towards understanding employees' perceptions in reference to the organisational KMS. Hence, this was an important element to explore during the process of the implementation of the organisational KMS, as proposed by Natek and Zwilling (2016) and Escrivão and Silva (2019). It was, therefore, further considered as an essential piece of the KM strategy towards organisational KMS in reference to OK online identification. This was specifically a consideration of the construction, conversion and dissemination of OK in organisations that exists with respect to the ease of access of OK in KMS to induce innovation and competitiveness (Natek and Zwilling 2016; García-Sánchez *et al* 2017). The annexation of online organisational OK identification into the organisational KM strategy for the adoption of KMS was thus vital and fundamental to realise for organisational KMS in MT companies in relation to senior-management support. The reviewed literature above suggests a description and an understanding of the OK identification systems for organisational KMS for KM. Hence, this study compared and explored practices to develop conclusions for MT companies in the Namibian context in relation to organisational KMS implementation.

### **3.6.2 Implemented Organisational Knowledge Creation and Capture Systems**

The creation and capture of knowledge processes with the support of senior managers has great significance to the organisation's KMS and rests on individual employees (Escrivão and Silva 2019). Without online processes of creation and capture of knowledge supported by senior management, projects are bound to perform poorly. The literature shows that organisational OK creation and capture processes have become critical as an organisational advantage when connected and used with KMS in relation to senior management (Wang and Wang 2016; García-Sánchez, García-Morales and Bolívar-Ramos 2017; Ortiz, Donate and Guadamillas 2018). It was critical, therefore, to delineate organisational creation and capture systems in MT companies in Namibia in terms of senior management. This was by exploring the diversity of the modus operandi used to excavate and manage employees' tacit and explicit knowledge online, that is, in the context of insights, know-how and the collective online web, and lessons learned that mitigate knowledge costs (Dalkir 2011; Jones 2012; Becerra-Fernandez and Sabherwal 2015; Escrivão and Silva 2019) in

MT companies in Namibia. The primary ideal emphasised the importance of investigating issues related to how senior management supports individual employees in gathering and storing OK online for the organisation's long-term viability. This was a critical factor to consider while intending to deploy organisational KMS. The implication was that MT companies should generate and save OK in their electronic databases and repositories in order to transform and create new products or services, such as by reusing existing project activities. Even though employee tacit OK is most important, it is difficult to exemplify or capture, and thus a mechanism to help employees who know more than they say is required, using online systems when senior management supports the process (Dlamini 2017; Escrivão and Silva 2019; Adesina and Ocholla 2020). This importance was based on understanding the contact between individual employees and how it is codified into databases and repositories with the support of senior management. In this context above, Adesina and Ocholla (2020) and Canonico *et al* (2020) argue that the SECI context makes available the foundation for considerate tacit and explicit OK in relation to the online creation, sharing, diffusion, transfer and capture of OK for this study.

Arguably, the extensiveness of tacit and explicit OK appears delicate and good-natured. Dlamini (2017), Adesina and Ocholla (2020) and Canonico *et al* (2020) posit that the online creation, capture, translating or conversion of OK requires the implementation of technology in consultation of employees and senior-management support for efficient organisational KMS usage. For on-the-job simulations or demonstrations, for example, the organisation must create and capture relevant information reflecting the employees' perspectives for future reference. It is from this angle that García-Sánchez, García-Morales and Bolívar-Ramos (2017), Ortiz, Donate, and Guadamillas (2018) and Canonico *et al* (2020) establish the three most important methodologies that should be used when creating and capturing online OK from individual employees and groups. These are interviewing experts (using structured or organised consultations, stories), learning by being told and learning by observation. This, however, requires a conceptual understanding of organisational KMS for KM practice within MT companies in Namibia within the context of senior management.

With formal knowledge creation and capture coordination mechanisms, OK is successfully stored and accessible online to employees, resulting in performance-

based and organisational advantages (Canonico *et al* 2020). This is accomplished by interspersing professional presentations, multimedia presentations, and transformative thinking throughout the training programme (Dlamini 2017; Adesina and Ocholla 2020). This was an important topic to explore in order to gain a better understanding of how tacit and explicit consent is generated, collected and shared online with the support of top management. This was in reference to organisational KMS in MT companies in Namibia. According to Dlamini (2017); Adesina and Ocholla (2020), tacit knowledge is subjective and personal. Employees may feel intimidated if the tacit OK is revoked, as this may be interpreted as a loss of authority and influence. As a result, if the viewpoints are not considered, such a circumstance may jeopardise the usage of organisational KMS, rendering it obsolete. Hence, employee motivation to share their knowledge into organisational KMS rests on senior-management support and organisational culture. The study determined that it was critical to investigate these challenges in the context of MT enterprises in Namibia and their organisational KMS implementation.

From a different perspective under the TOE framework, the broader issue was that MT companies in Namibia should be duty-bound to implement an organisational KMS that permits online OK creation and capture infrastructure in consideration of employees' views. This ought to be under the umbrella of understanding individual employees, senior managers and organisational culture. Arguably, without OK, a capture and creation strategy compromises the utilisation of OK in organisational KMS. As a result, MT companies in Namibia might be unsafe to operate and struggle to manage OK and survive in the KBS. MT companies in Namibia could be, therefore, threatened by competitive pressure as well as losing OK. It is imperative, therefore, to reflect on which OK-captured systems ought to permit the transformation to a new OK and bring about success for the organisation when an employee has access to retrieving OK (Dlamini 2017; Adesina and Ocholla 2020; Canonico *et al* 2020). Consequently, this study paid attention to OK creation and capture-system activities in MT companies by finding out what the main types of OK MT companies in Namibia were involved in.

In general, the scholars above believe that individual workers and group perspectives serve as a source of tacit OK creation and capture for the organisation's KM system.

Organisations benefit when information is acquired and maintained in timely and managed electronic databases that induce employee performance. However, consistent with the arguments, existing substantial literature identifies substantive issues regarding the creation and capture of OK with reference to Dlamini (2017). MT companies in Namibia should consider unfortunate transfer issues, search issues and a lack of trust among individual employees for a successful organisational KMS (Dlamini 2017; Garca-Sánchez, Garca-Morales and Bolvar-Ramos 2017; Ortiz, Donate and Guadam 2017). Arguably, this may be accomplished consistently and effectively via the development of employee confidence and even social engagement with the OK reservoir. However, this study examined these difficulties in connection to the implementation of organisational KMS in MT companies in Namibia through OK development and capture-system activities.

### **3.6.3 Implemented Organisational Knowledge Storage Systems**

The deployment of an organisational KMS in accordance with an organisation's strategy should illustrate how an acceptable online storage system should operate with the support of senior management (Dlamini 2017; Adesina and Ocholla 2020; Canonico *et al* 2020). As a result, an exceptional digital storage system is founded on an organisational KM strategy that determines the information success criteria required for a business to meet its performance objectives. The ability of an organisation to store and maintain OK has become critical to the success of organisational KMS in terms of online accessibility and usability. KMS systems in organisations aid workers in identifying and classifying relevant information.

From the vantage point stated above, it is critical to note that organisational KMS has revolutionised how OK is electronically stored and distributed within organisations. To support these processes, online OK storage acts as a critical component of an efficient organisational KMS for KM practice. Implementing technology for online organisational OK storage could be used to electronically drive, retrieve and access OK within and across MT companies' boundaries. As a result, a thorough, time-bound, proper and extensive investigation was required to understand the knowledge storage and retrieval capabilities of the MT companies in Namibia. Dlamini (2017), Adesina and Ocholla (2020), Afridi, Gul and Naeem (2019) and Canonico *et al* (2020) argue that organisational OK storage systems are transmitters of OK exchange, a prospect of OK creation, generation and sharing. Organisations lose OK when there is no online

storage strategy in place, jeopardising individual employee performance, innovation, and informed organisational decision-making processes (Dlamini 2017).

With reference to codification in selected MT companies in Namibia, electronic storage of knowledge could be homogeneous, organised and stored in the organisational KMS. These solutions would enable the company to store OK on its servers and distribute it over data networks to all departments or divisions. The objective is to enable the online generation and transition of tacit OK into explicit OK (Canonico *et al* 2020). Although current studies indicate that organisations generate and gain knowledge, organisations often lose in relation to critical and learned expertise (Chou 2004; Afridi, Gul and Naeem 2019). It is from this perspective above that online knowledge storage ought to be created with a contextual design to focus on employee-centred progress for evaluating the end-user requirements at the initial stages of a development plan and creating the everyday structure of the employee's interface to the systems (Canonico *et al* 2020; Afridi, Gul and Naeem 2019). These authors suggest that it should be based on the objective and delineation of the issue while participating in interviews, discussions and document analysis at the selected Namibian MT companies. This was intended to achieve acceptable and appropriate documentation of OK for timely accessibility as well as practical and cost-effective MT operations management.

Online OK storage manifests itself in two ways: tacit and explicit OK that goes through processes for safe storage. Thus, an employee is a source of tacit OK that is awaiting capture, depending on the relations to the organisational KM systems for KM practice. Once collected, tacit OK becomes explicit OK, which may be digitalised depending on the technique employed, while still providing storage utility (Canonico *et al* 2020). The technique for decomposing OK into facts and storing them in an electronic database for identification enables the identification or querying of it to be well-organised (Dlamini 2017; Canonico *et al* 2020). In terms of personalisation, the approach emphasises that tacit OK transmission occurs between employees online, but OK storage structures are less synonymous with codification. According to Dlamini (2017), Adesina and Ocholla (2020) and Afridi, Gul and Naeem (2019), these systems employed under personalisation prioritise personal employee online interaction over discussing proficient technical issues, elucidation, methods and costs in order to allow for intricate progression of the individual employee while performing comparable



accountabilities. Organisational KM systems, according to the SECI model, aid workers in discovering and categorising important knowledge.

The online storage of OK is for retrieval of information surplus on diverse KMS, excessive use of emails to exchange tacit and explicit knowledge, integrating from different employees and exchange of technical OK between employees (Santos, Soares and Carvalho 2012:32; Cerchione and Esposito 2017; Canonico *et al* 2020). These authors above present arguments to emphasise the importance of MT companies having electronic databases large enough to store and allow timely access to and retrieval of OK. This development is required for OK preservation and storage to ensure that the relevant OK is available on time, is accessible, manageable and substantiated by individual employees' primary sources using organisational KMS.

Hence, online storage as a mechanism ought not to form an appendix, but it is a critical aspect of efficiency and effective organisational KMS practice in MT companies in Namibia. Online organisational OK memory (storage) is an essential element for organisational KM for KMS to induce innovative and competitive advantages. Organisational KMS as a storage system and advanced retrieval methods or capabilities, such as electronic mail systems (EMS), internet, query language, multi-media databases, expert and database management systems, are critical elements or tools that strengthen the retrieval and accessibility of OK storage capabilities (Canonico *et al* 2020) in MT companies in Namibia. These tools assist the organisation and employees with the categorisation of OK in MT companies in Namibia. Nengomasha (2009:77) cautions that long-term knowledge preservation is under threat due to the obsolescence and incompatibility of hardware, software, data formats or storage media. Nengomasha (2009) states that the lack of metadata and assigned responsibilities and resources for preservation hampers OK management. However, Cerchione and Esposito (2017) and Canonico *et al* (2020) point out that KMS capabilities, for example, OK storage, do not sway or influence employees' ability to utilise available OK. The current study paid attention to OK storage-system activities via organisational KMS in MT companies in Namibia.

### **3.6.4 Implemented Organisational Knowledge Sharing Systems**

It was critical for this study to take the SECI and TOE frameworks into account while examining OK-sharing in connection to organisational KMS in selected MT companies.

Organisational knowledge sharing slashes possible organisational KMS elements for KM based on employee sharing and transfers in order to instil a new level of acceptance for enhanced employee productivity. Stachová, Stacho, Cagánová and Starecek (2020) and Cassia, Costa, Da Silva and Neto (2020) define online OK-sharing using collaborative tools as a process of debate and exchange of OK between workers, departments and the organisation through an organisational KMS.

The importance of human engagement in supporting OK exchange is emphasised by online collaboration and information-sharing solutions (Junior, Gobbo, Fukunaga, Cerchione and Centobelli 2020). Employees, departments and organisations engage in routine and ad hoc exchanges of OK in order to inspire new ideas and enhance performance. As a result, online OK sharing enables workers to progress and explore their core beliefs, assumptions and working methods. This is because sharing OKs involves the interchange of organisational ideas and methodological know-how, which results in the transformation and production of new OK via the application of organisational KMS (Singh, Gupta, Busso and Kamboj 2019; Scuotto *et al* 2020). OK-sharing was recognised as an activity for this research and its meaning was developed by piecing together workers (reservoir of OK) utilising KMS.

In principle, individual and organisational characteristics, as well as characteristics of the organisational KMS, may promote or obstruct the exchange of knowledge (Brown, Dennis, Burley and Arling 2013). These authors continue to state that individuals' social networks and the type of knowledge to be communicated might determine whether they opt to communicate formally or informally via the KMS. Becerra-Fernandez and Sabherwal (2015), Stachová *et al* (2020) and Cassia *et al* (2020) found that these systems assist individual employees and organisations in sharing OK (explicit or tacit). From this perspective, it appears that OK-sharing depends on organisational culture and trust among employees and organisations. When OK is shared with other employees, it enriches and benefits them to the extent that it is absolved and applied or utilised to maximise organisational goals (Cassia *et al* 2020; Jiang, Wang and Feng 2020; Stachová *et al* 2020). It points to technology where OK is transmitted using KMS tools and engages in a discussion. OK is created, transformed and internalised by discussion to produce new OK. Young (2010:5), Vasconcelos, Kimble, Carreteiro and Rocha (2017) and Zeraati, Rajabion, Molavi and Navimipour (2019) categorise tools such as:

peer assistance, learning assessments, after-action reviews, storytelling, communities of practice, collaborative physical workspaces, OK cafés, communities of practice, taxonomy, document libraries, knowledge bases (wikis, etc), blogs, social networking services, voice and voice, OK clusters, expert locator, collaborative virtual workspaces, OK portal, video-sharing and mentor/mentee as driver of organisational KS.

This development above was essential to understand organisational KMS for KM in MT companies. Becerra-Fernandez and Sabherwal (2015), Vasconcelos *et al* (2017), and Zeraati, Rajabion, Molavi and Navimipour (2019) hold the position that OK-sharing processes depend on time, power of OK and trust, which are critical elements for its success. Arguably, these OK-sharing processes and transmissibility depend on individual employees. Therefore, the creation and sharing of OK depend on structural, organisational systems that permit employees to use KMS to share OK. It is projected and described to give an understanding of the importance of KMS in MT companies. Organisational KS is a key to accomplishing all organisational KM strategies and effective OK practices to expedite reprocessing and revitalisation of new OK, both tacit and explicit, at individual and organisational levels (Zeraati, Rajabion, Molavi, and Navimipour 2019).

Scuotto, Beatrice, Valentinac, Nicotrad, Di Gioia and Briamonte (2020) use the face-to-face method as a preferred mechanism of OK-sharing to establish trust. Stachová *et al* (2020), Cassia *et al* (2020), and Jiang, Wang, and Feng (2020) state that emails were not commonly used as a means of sharing OK. These findings reflect Japanese understanding and it is essential to investigate applying them to MT companies in Namibia. To the best of the researcher's knowledge, no one has studied it in the Namibian context before.

According to Becerra-Fernandez and Sabherwal (2015) and Scuotto *et al* (2020), the success of OK-sharing is dependent on factors such as employee motivation to participate in sharing valuable or important OK and the reduction of financial costs associated with accessing and finding various essential OK. The reluctance of staff members to share OK or their inability to comprehend what KMS will offer creates a gap between processes such as internalisation and externalisation during

implementation (Stachová *et al* 2020; Cassia *et al* 2020; Jiang, Wang, and Feng 2020 and Scuotto *et al* 2020). To understand OK-sharing systems, the researcher was of the view that the individual employee will:

- (a) share their OK among a controlled and trusted group of employees;
- (b) decide to share based on the conditions for sharing; and
- (c) seek fair exchange or reward for sharing (Jiang, Wang, and Feng 2020; Scuotto *et al* 2020).

In an organisation, an individual OK seeker may:

- (a) not be aware of possibilities for sharing OK, and that a repository of OK assists in terms of searching and ranking; and
- (b) want to decide on the condition for OK acquisitions (Becerra-Fernandez and Sabherwal 2015:152).

OK-sharing presumes the act of externalisation (training other employees or writing or codifying intelligent KMS), internalisation, looking into barriers such as space and time, organisational culture and OK-hoarding (Becerra-Fernandez and Sabherwal 2015); Cassia *et al* 2020; Jiang, Wang and Feng 2020; Scuotto *et al* 2020 and Stachová *et al* 2020;). In contrast, diffusion, sharing or transfer of OK ought to be contextualised in MT companies for what is envisioned. There is a need for OK-sharing and transfer in MT companies for individual employees or groups of individuals to create transformation to a recipient of OK by changing them into knowledgeable employees.

For MT companies in Namibia, implementation ought to spell out effective and efficient use of the organisational KMS such as:

- (a) collection and systematic organisation of OK from different sources;
- (b) minimisation of up-front OK engineering;
- (c) integration into the existing organisational, technological environment; and
- (d) active presentation of important OK (Cassia *et al* 2020; Jiang, Wang, and Feng 2020; Scuotto *et al* 2020; Stachová *et al* 2020).

Implementation should be based on sharing systems that include an incident report database, alert, best-practice database and expertise systems (Becerra-Fernandez and Sabherwal 2015).

However, Gou, Li, Lyu, Lyu and Zhang (2018), Cassia *et al* (2020); Jiang, Wang, and Feng (2020) Scutto *et al* (2020) and Stachová *et al* (2020) acknowledge OK-sharing and transfer obstacles as an individual, organisation culture and localisation. These impediments exhibit as:

- (a) ignorance;
- (b) no absorptive capacity;
- (c) lack of pre-existing relationships;
- (d) lack of motivation;
- (e) lack of trust;
- (f) different cultures;
- (g) vocabularies or frames of reference;
- (h) lack of time and meeting places or a narrow idea of productive work;
- (i) the belief that OK is a prerogative of particular groups; and
- (j) intolerance of mistakes or need for help.

The literature reviewed above suggests an explanation or understanding of organisational KS progression concerning organisational KMS is important. Hence, this study compared or explored this understanding to that of MT companies in Namibia.

Failure of MT companies to discuss these issues renders KMS dysfunctional and can obstruct access to and retrieval of OK needed to induce innovative products and services (Jiang, Wang, and Feng 2020; Scutto *et al* 2020). KMS services need to include proposed users when developing strategy, planning and delivery (Gou, Li, Lyu, Lyu, and Zhang 2018; Cassia *et al* 2020; Stachová *et al* 2020) and underscores that organisations and managers need to be cautious of these subjects and their implication for KMS in inducing innovation, product and service provision.

The points mentioned above, although important, are limited in respect of the broader aspects of advancing understanding of organisational KMS concerning individual employees' prospects and capabilities of organisational KMS use for KM in MT companies (Gou, Li, Lyu, Lyu, and Zhang 2018; Cassia *et al* 2020; Stachová *et al* 2020). Furthermore, these prospects do not account for critical dimensions of organisational KMS implementation in selected MT companies. Cassia *et al* (2020) and Stachová *et al* (2020) suggest that the disproportionate contribution of individual

employees to the understanding of KMS in MT companies (perceived as early adopters of technology) and their unequal contribution in decision-making before implementation and before use is critical.

In this study, the common understanding between individuals, groups, departments, or divisions involved in identifying, capturing and sharing OK experiences was essential to understanding organisational KMS implementation from an individual employee's perspective. OK-sharing should be central for MT companies to enhance individual employee performance by acquiring new skills and ideas. Hence, the literature reviewed above gives an understanding of organisational KMS implementation on an individual's observed capability based on their intent to add growth to OK by using KMS for KM. This study observed such practices concerning understanding organisational KMS implementation in selected MT companies in Namibia.

### **3.6.5 Implemented Organisational Knowledge Classification Systems**

Zhang and Venkatesh (2017) claim that it is important that OK is classified digitally, based on meta-knowledge classification types and format as deposited. These authors refer to systems such as search engines that employ browsers and classify documents by class and group. Sabeeh, Mustapha and Mohamad (2017) and Zhang and Venkatesh (2017) argue that it is crucial to organise OK and spell out the characteristics preferred for diverse classifications in organisations to enable the understanding of OK classification. These scholars refer to formal and informal OK as a critical arrangement of OK in an organisation. In this study, formal OK refers to explicit OK frequently brought into being in books and documents shared online or hard copy in training, workshops and conferences (Intezari, Taskin, and Pauleen 2017; Mazzocchi 2018).

In most cases, OK is articulated and detailed in the systems of the manuscript and arithmetical symbols with detailed illustrations (Mazzocchi 2018), documented, socially constructed, and stored in KMS through electronic data structures, hence leading to competencies during the organisation progression (Sabeeh, Mustapha, and Mohamad 2017). However, it is important to bear in mind that informal OK by an individual employee (tacit OK) is usually accrued after long experience, comprehension and intuition (Saad and Haron 2014; Zhang and Venkatesh 2017;

Canonico *et al* 2020; Adesina and Ocholla 2020). This category of OK can be understood and documented in unstructured arrangements, such as SMS, emails, social media posts, blogs, forum discussions and multimedia files, using implemented organisational KMS (Centobelli, Cerchione, and Esposito 2019; Adesina and Ocholla 2020; Canonico *et al* 2020; Sabeeh, Mustapha, and Mohamad 2017).

The extensive work of literature and journals in OK and the dearth of succinct direction in several of these journals have made the understanding of OK perplexing (Sabeeh, Mustapha, and Mohamad 2017). From this perspective, Nengomasha (2009) and Ngulube (2014) argue that issues such as a lack of record management systems, absence of classification schemes, poor retrieval of data, lack of proper filing systems, and no formal file plans are elements that hinder information classification. This study is interested in these issues concerning organisational KMS in selected MT companies in Namibia.

OK classification serves two purposes in an organisation. A purposive definition of what OK could do once retrieved: perceptual (graphical format of OK), functionality (personal individual employee use by type of content of the OK map) and motor-activity (physical interaction with content) (Eppler 2008; Ngoepe 2014). When classification takes place, organisational KM strategy (concerning organisational KMS) ought to specify the following elements:

- (i) The purpose, content, context and form of OK explains KM responsibility that underpins the OK map. Content or proportion/breadth entails elements referred to in the OK map, including sub-element tools such as the electronic or online list of expertise, e-documents, e-communities and databases.
- (ii) OK classification map by content will include websites such as blogs, portals, homepage, e-documents (e-books, manuals), databases or repositories and learning objects online, electronic files that contain sketches or drawings (Eppler 2008; Shi, Guan, Zurada, and Manikas 2017).

In contrast, OK classification ought to be understood in an organisational and individual-employee context for what is intended (Ngoepe 2014; Adesina and Ocholla 2020; Canonico *et al* 2020). OK classification would assist and show employees exactly what the use of OK is by addressing anticipated problems using different

graphical-design illustrations. Adesina and Ocholla (2020) agree, saying that organisational KMS is constructed on organisational internal OK created inside the organisation, for example, internal analysis and external OK market reports (Canonico *et al* 2020). Classification secures OK protected by intellectual property rights, historical OK (associated with past organisational happenings), that is, lessons learned in contrast to OK, future undertakings such as project proposals and ideas (Canonico *et al* 2020).

Sabeeh, Mustapha and Mohamad (2017) assert that OK ought to be classified into these four sets: online *meta*, *milieu*, *contingent*, and *instrumental* OK. These scholars claim that *meta* OK relates to cultural and philosophical presuppositions. This type of knowledge refers to knowing about other members of a community of like-minded people, specifically who knows what or know certain OK. In the context of MT companies, *milieu* would be concerned with the immediate surroundings, peer groups, management, and personnel in relation to OK. In social science, a *milieu* is defined as the proximate social and physical environment in which individuals live/work or develop. This encompasses the culture in which the person was educated or now belongs, as well as the segments of the organisation with whom they interact. On the other hand, *contingent* OK refers to the distribution of knowledge within a specific topic or setting; for example, *on-the-job training*, which is manifested through observation of others performing specific work. This strategy is used to impart OK to employees when time is a constraint. The fourth classification is *instrumentalities*, which refers to the type of OK found in instruments. For this segment of OK to be clear and helpful, it must be reliant on other types of knowledge. In seminars and training sessions devoted to the acquisition of a new technology tool or system, instrumentalities are evident (Sabeeh, Mustapha, and Mohamad 2017: 6349-6350). In the context of an organisation, in particular, this study explored how organisational KM systems are used to support the classification for type of OK to induce KM practice. This was in reference to the distinct collection of information and skills that allows an individual to do a specific activity with the assistance of technology in MT companies.

In MT companies, classification for organisational KM systems might support a diversity of KM procedures (Canonico *et al* 2020; Adesina and Ocholla 2020). MT companies must follow a methodical practice when it comes to different types of OK classifications. Different sorts of OK in classified systems provide significant value



depending on the context, providing possibilities for individual employees to learn from several sources, either directly or indirectly, as well as structural learning (Aslamiyah, Anisah, Yulianto, and Widyantoro 2019). The aforementioned literature review in the section contributes to the ever-growing body of observed OK-categorisation investigations. They provide substantive insights into organisational decision-making that enhance the SECI model's usefulness in fostering organisational KMS effectiveness by including sound parts of the TOE framework with respect to classification. The literature presented above demonstrates a thorough grasp of classification in the organisational KMS in connection to an individual's alleged competence as determined by their contribution to expanding OK via classification for KS (Aslamiyah 2019; Canonico *et al* 2020) but in the Namibian context. This study, however, examined several classification procedures used by MT companies in Namibia via organisational KMS.

### **3.7 Literature Review on KMS Infrastructure**

Organisational KMS infrastructure is a prerequisite for the management of OK in KBS. It offers a collective prominence for the organisation in addressing contexts manifested during organisational KMS implementation for KM practice (Aslamiyah 2019; Canonico *et al* 2020; Adesina and Ocholla 2020). As a prerequisite for the KM framework, KM technology such as infrastructure, the Internet, intranet, and extranet are required for successful KM practice requires a social context (Okere 2017; Zhang and Venkatesh 2017). The lack of organisational KMS infrastructure could pose constraints on the timely and innovative proficiency access to OK of individual employees (Zhang & Venkatesh 2017). Individual employees may want to conceal information in order to maintain their sources of power and influence; professionals are often happy to share their expertise (Tsetim, Adegbe and Agema 2020). With a social context embedded, Etori and Alilah (2020) opine that experts are prepared to give up time to work in more challenging situations and pursue other professional interests. KM practice depends on KM solutions based on organisational culture, structure, processes, individual employee factors and technology (Aslamiyah 2019; Canonico *et al* 2020). The significance of KM infrastructure stems from the fact that effective implementation of organisational KMS for KM practice necessitates adequate infrastructure in MT companies, as proposed by Tsetim, Adegbe and Agema (2020). These authors continue to state that KM infrastructural capability is built to facilitate a collaborative atmosphere which pushes the mechanisms of the organisational KMS

for KM. This is in relation to working together and developing the enabler between KM applications and problem-solving. Organisational KMS infrastructure act as the basis upon which KM practice or accomplishments are created (Hajir, Obeidat, Al-Dalahmeh and Masa'deh 2015; Tsetim, Adegbe and Agema 2020). Hence, the lack of it undermines organisational KMS for KM practices in MT companies in Namibia.

The organisational KMS infrastructure describes the anticipated structures that will improve KM activities online to promote innovation (Shehata 2015; Hajir, Obeidat, Al-dalahmeh and Masa'deh 2015). As a result, it was assumed in this research that strategy should be defined by the constructs discussed in Chapters 1 and 3 in relation to organisational KMS for KM that is influenced by personalisation and codification of OK. This was intended to aid understanding of organisational KM implementation in relation to its capabilities in Namibian MT companies. By integrating procedures and capabilities that promote competitiveness, KMS infrastructure capabilities aid in knowledge acquisition, conversion, application and protection processes (Tsetim, Adegbe and Agema 2020). From that perspective, organisational KMS practices ought to be regulated by infrastructure, such as company's values, organisation, frequent OK, system infrastructure and the physical environment to ensure its long-term viability (Shehata 2015; Zhang and Venkatesh 2017; Aslamiyah 2019; Canonico *et al* 2020). A conceptual framework identified organisational KMS infrastructure and employee perception (Section 3.7). It acted as critical constructs for effective access to or retrieval, capture, creation, storage and OK for KMS implementation, according to the literature reviewed in this study.

The understanding underlying this thesis was that organisational KMS technology, when implemented, enables timely processing of the creation, preservation, capture, storage and retrieval of knowledge via collaborative tools for continuous innovation and improved decision-making as suggested by Zhang and Venkatesh (2017); Aslamiyah (2019). Significant research indicates that the dimension of KM infrastructure has the greatest influence on innovation in information technology (Hajir, Obeidat, Al-dalahmeh, and Masa'deh 2015; Tsetim, Adegbe, and Agema 2020). Tsetim, Adegbe, and Agema (2020) underscored the importance of technology infrastructure as the combination of data processing, storage and communication technologies and systems (databases, servers, computers, information devices, and so on) and the processes that make them all work for organisational innovation. It is

argued in this study that organisational culture permits organised KMS infrastructure and is generally regarded as one of the important dynamics of organisational KM. These are standards, ethics, customs, unwritten guidelines and processes that encompass cultural OK resources that lean to organisational KMS implementation (Aslamiyah 2019; Canonico *et al* 2020).

MT companies ought to create the right to use OK via organisational KMS infrastructure that comes through well-founded training and skills by individual employees to use the systems to advance the management of OK (Cerchione and Esposito 2017; Santoro, Vrontis, Thrassou, and Dezi 2018). Therefore, implementing these systems makes for timely access and usage of OK that depends on the perceived usefulness and benefits of organisational KMS to individual employees (Santoro, Vrontis, Thrassou, and Dezi 2018; Aslamiyah 2019; Canonico *et al* 2020). A prerequisite for MT companies growth is organisational KMS infrastructure. Given this possible fundamental role of organisational KMS infrastructure in enabling KMS, infrastructure was identified as an essential aspect of the study, hence exploring its contribution to Namibia's MT companies.

Give what is mentioned above, another understanding explored in this study was that individual employee's acceptance of organisational KMS depends on infrastructure. This understanding was grounded on elements such as perceived relevance, systems accessibility and management support (Dávideková and Hvoreck 2017; Canonico *et al* 2020). This was to show the most critical and compelling things to apply such as the internet, intranet, browsers, data warehouses, data-filters and software services to systematise, facilitate and expedite firm-wide OK management (Oliva and Kotabe 2018). Organisational KMS infrastructure creates a technological environment that permits and contextualises infrastructure composites of the sophisticated nature of OK. This process supports and facilitates the handling of OK via document-management systems, search engines and visualisation technology (Shehata 2015; Cerchione and Esposito 2017; Santoro *et al* 2018). Electronic documents, content management systems, knowledge-map systems, electronic knowledge portals, an electronic community of practice, groupware systems and data-mining systems are discussed briefly in the following sub-section. These were essential sub-constructs to explore the organisational KMS infrastructure in MT companies.

The understanding was that organisational KMS infrastructure is supposed to be grounded in employees' acceptance of transforming OK (Oliva and Kotabe 2018; Vukšić *et al* 2015; Rhem 2017; Santoro, Vrontis, Thrassou and Dezi 2018; Ekambaram *et al* 2018; Tounkara 2019; Ullah 2020). These authors state that the organisation must work on the computational process and collaborate with individual employees and developers, repeatedly developing, implementing and testing prototypes. Organisational KMS for KM practice has to lead to the establishment of novel OK-sharing settings and technologies that encourage people to interact, collaborate, create, and share knowledge, virtually regardless of their physical location. Technology enables collaboration, workplace conditions, searching, accessibility and structured storage; it also defines how information is distributed across the organisation (Tsetim, Adegbe and Agema 2020). It was, therefore, necessary for senior management in MT companies to familiarise themselves with the benefits of organisational KMS for improving support for KM practice (Tounkara 2019; Ullah 2020). This outline of the organisation has provided valuable information for the current study on organisational KMS in selected MT companies in Namibia.

The information above assisted the researcher in obtaining a comprehensive view of the requirements, such as perceived relevance, system accessibility and acceptance (the process of accepting KMS favourably), and implementation (Razzaque, Eldabi, Jalal-Karim and Karolak 2012; Rhem 2017; Santoro, Vrontis, Thrassou, and Dezi 2018). Systems form part of the individual who ought to use the system for organisational activities. Finally, the organisational KMS infrastructure can be tailored to the procedures of the new MT companies, which replicate the fundamental strategies (Dávideková and Hvoreck 2017; Ekambaram *et al* 2018; Canonico *et al* 2020). The study helped to generate a conceptual strategy for data collection and acted as a vehicle for understanding the perspective of the infrastructure concerning organisational KMS discussed in the sections below. Concepts discussed from 3.7.1 to 3.7.6 are in relation to the following elements that contribute to an organisation's KMS success: (i) perceived usefulness – efficient and comprehensive OK characteristics; (ii) user satisfaction– practicality, simplicity of use; (iii) service quality at the ecommerce level; (iv) knowledge use – the extent to which end users utilise output features; (v) user satisfaction – how users respond to online system output; (vi) individual impact – the effect of output information on a user's behaviour; and (vii)

organisational impact – the effect of extracted information on an organisation's effectiveness (Razzaque, Eldabi, Jalal-Karim and Karolak 2012:3).

### **3.7.1 Organisational Knowledge-Map Systems**

Wang and Wang (2016) and Corea (2019) state that OK maps are techniques and tools implemented to assist with locating, discovering and visualising OK in organisational KMS for KM practice. These authors continue to state that utilising the interface approach in the knowledge-map system creates a new image-retrieval substructure shared by both domains, depending on what relevant features are highlighted. OK map systems are used to elicit, share, learn and create knowledge and enable better decision-making in an organisation (Corea 2019). Particularly with regard to electronic documents, databases and transit applications to remove OK from the sources (for acquisition), the process can be sped up by assessing an OK culture and overcoming conflicting or competing issues (Wang and Wang 2016; Corea 2019; Li, Lu, Chen, and Wang 2020). Online mapping systems are particularly interested in underlying significant connections and evidence-informed policy (Chiu and Pan 2014). Meanwhile, the creation of a knowledge-map system for an organisational domain emphasises content classification as well as organisational knowledge portals (Section 3.7.3). This relates to employees' understanding of what expertise is and how it relates to the company's learning experience. Knowledge maps indicate the locations or occurrences of bits and pieces and identify the relationship between them (Corea 2019; Li, Lu, Chen and Wang 2020). The main components of knowledge assemblages are utilised as markers on a topic knowledge map in this study (Chiu and Pan 2014, Corea 2019; Li, Lu, Chen, and Wang 2020).

Organisational knowledge-map systems can be understood to use and depend on trust as the underlying principle of learning dependency or a prerequisite of organisational knowledge (Zhang and Venkatesh 2017; Corea 2019; Li, Lu, Chen and Wang 2020). It appears that organisational knowledge-map systems are becoming more based on abstract confidence in personnel, which eventually results in reliance on content. From this perspective, organisational knowledge-map systems should be situated or designed to encourage professionals to share information on people, projects, organisations and tools in their working fields (Zhang and Venkatesh 2017; Corea 2019; Li, Lu, Chen and Wang 2020). Organisational knowledge-map systems answer questions such as: “Who worked on a similar problem/project/assignment

before?” or “There must be a tool for this problem, but where?” (Centobelli, Cerchione, and Esposito 2019). Organisational knowledge-map system maps aim to support managers in their efforts to manage organisational knowledge explicitly rather than create automated solutions that will manage it implicitly (Najafi, Aghdasi, and Teimurpoor 2017; Corea 2019; Li, Lu, Chen and Wang 2020). This study was of interest concerning KMS infrastructure for organisational KMS for KM practice in MT companies.

From these vantage points, it was essential to comprehend the challenges inherent in current OK relationships and the function of OK map systems. This is to enable the successful deployment of KMS in Namibia's MT companies. MT companies should prepare themselves for the adoption and successful implementation of organisational KMS in order to solve the problems associated with the functioning of the OK map system immediately (Dai, Duan, and Zhang 2020; Li, Lu, Chen and Wang 2020). This should be based on a thorough understanding of current competitions in relation to organisational KM systems in MT companies. One is that both companies in this research have regional offices located across Namibia. OK map systems are worth examining in terms of where, how, who and for what OK is accessible at any given moment within the organisation's structure.

Dai, Duan and Zhang (2020) and Li, Lu, Chen and Wang (2020) emphasise that the most valuable aspect of information technology in organisational KM is allowing the expansion and universalisation of the scope and enhancing the speed of OK transfer in an organisation via OK map systems. Najafi, Aghdasi and Teimurpoor (2017) and Dai, Duan and Zhang (2020) further emphasise that OK maps assist in forming a visible framework to support OK management by individual employees via an OK exchange, locating individual employee experts with collaboration tools for interfacing among themselves. According to the literature reviewed above, an OK map enables employees to have improved electronic and timely access to sources of tacit and explicit OK to induce performance, satisfaction, innovation and a competitive edge. This study explored these issues in selected MT companies in Namibia concerning organisational KMS implementation.

### 3.7.2 Organisational Document and Content Management Systems

Technology via document and database management systems (DMS) has changed how OK is handled and managed in an organisation. Document and content management systems facilitate the handling of explicit OK (e-documents) and web content for the entire life cycle of OK (Arpaci 2017; Nurmeksela 2017) and deposit of online tacit OK. DMS is regarded as a programme and other operating systems used to manage the storage, retrieval, and updating of OK utilising a computer system (Chugunov 2019; Demir, Budur, Omer, and Heshmati 2021). Reference is made to handling the storage, retrieval and access of OK in Namibian MT companies as a necessity. DMS enable the creation of inter - and intra-, the loading of records and deletion of ancient ideas, the updating of documentation, the retrieval of information that precisely matches the system that delivers it, and the ranking of records against a theme or topic or fewer decisions that specify users' needs (Arpaci 2017). A web-based content management system could perhaps enable users to capture, store, change, distribute, retrieve, preserve and collaborate with data from any location and at any time (Okere 2017). Considering the problems and how DMS enables organisational KMS is essential to explore.

Online processes of explicit OK storage or dissemination of OK in an electronic format support the quick location and position of documents or OK required for assignment (Chugunov 2019; Choi, Ahn, Jung, and Kim 2019; Demir *et al* 2021) in relation to DMS. This implies that papers may be changed on a computer throughout their lifecycle, from creation to ultimate archiving. At the very least, printed pages may be phased out of contemporary workplaces, while others claim that they are fully electronic (Demir *et al* 2021). Therefore, this requires an electronic document and record management system (EDRMS) specialised in sectioning of EDRMS and highlighted as managing digital records as a comprehensive conception beneath which EDRMS turns into a subsection for organisational KMS (Kamatula 2018:62). The efficient application of EDRMS is the spine of every single section of MT companies, as it heightens precision and efficiency concerning organisational KMS for KM practice. The authors continue to state that EDMS was designed to improve efficiency by reducing time spent transferring paper files from one action officer to the next, as well as to assist in minimising the hazards related to software knowledge management. Additionally, they assist in avoiding the dangers connected with human record management. A critical aspect is the availability of processes that facilitate the movement of papers

electronically between employees while enabling modification and reacting to their knowledge as they go through the process (Kamatula 2018).

There are common elements between electronic document management systems (EDMS) and electronic records management systems (ERMS; Nengomasha 2009). Electronic document management systems (EDMS) and electronic records management systems (ERMS) share key components of an organisation's KM system (KMS) for KM practices. The difference between the two was significant in this study. The three basic types of system that handle electronic documents are online transaction processing (OLTP) systems, decision support systems (DSS) and electronic document management systems (EDMS; Nengomasha 2009; Kamatula 2018; Masuku and Ngulube 2019). It is in this context that DMS has developed a global reputation as a crucial instrument for information management (Fugini and Finocchi 2018; Choi *et al* 2019; Sun, Liu, and Ding 2019). Numerous managers have realised that successful management requires efficient and effective information and knowledge management (Alshibly, Chiong and Bao 2016). With all of that in consideration, the following advantages are possible: papers become more accessible and easier; collaboration is facilitated by an open-source platform; many professionals work on the same document concurrently; and product cycle times are decreased, as proposed by Kamatula (2018). In the light of these advantages, the purpose of this section of the study was to confirm that explicit OK is a permanent online record that could be altered and certain modifications or enhancements to it result in a new description that is collected, maintained and shared as OK by MT companies, and therefore warrants exploration.

The primary context of complex digital coordination for document and content management systems is the creation and preservation of precise, explicit OK records, as well as the maintenance of validity over time (Kamatula 2018; Demir *et al* 2021). Nonetheless, the primary hindrance is the high cost of producing a diverse data set and processing large volumes of records (Fugini and Finocchi 2018). On the other hand, organisations have acknowledged that massive amounts of data can be captured, stored, and processed and that the knowledge gained from such data is valuable, posing interstellar as well as retention and disposal challenges (Masuku and Ngulube 2019; Mutimba 2017; Nurmeksela 2017; Fugini and Finocchi 2018). According to Mutimba (2017), Nurmeksela (2017), and Fugini and Finocchi (2018),



online document databases have become the solution for storing documents that are accessible only within an organisation. Fugini and Finocchi (2018) state that document databases can also be created to facilitate benchmarking studies or to address specific application needs, such as source-code repositories.

Although advances in document management have resulted in significant benefits from “Big Data” characteristics, the context of its implementation for KM researchers, managers and organisations ought to be explored (Mutimba 2017; Nurmeksela 2017; Fugini and Finocchi 2018). This is with reference to concerns about organising content electronically using computer systems to scale content, offer confidentiality and timely and remote accessibility (Demir *et al* 2021). The situation mentioned above has compelled and assisted managers and academics in exploring solutions. It is from this perspective that organisations are faced with a highly labour-intensive journey of making raw data information into an actionable OK (Abadi, Agrawal, and Ailamaki 2013; Nurmeksela 2017; Fugini and Finocchi 2018). Problems encountered include the choice of software that runs into the organisations’ necessities and incorporates them into the core organisation production (Mutimba 2017; Adesina and Ocholla 2020). Several electronic information management systems, such as electronic document management systems, decision support systems and online transaction processing systems, are in danger due to deficient electronic filing systems, poor backup practices and preservation of system documentation (Nengomasha 2009:97; Masuka and Ngulube 2019). It was therefore important for this study to investigate the issues concerning organisational KMS implementation in selected MT companies in Namibia in relation to document and content management systems.

Based on the above understanding, many organisations may find it difficult to leverage OK without document and content management systems for organisational KMS for KM practice (Fugini and Finocchi 2018; Choi, Ahn, Jung, and Kim 2019; Sun, Liu, and Ding 2019; Adesina and Ocholla 2020). In a similar vein, Wang and Wang (2016) state, implementing KMS is a challenge and a risk for many organisations because it is distinct in terms of electronic document management and essential for KM practice. One important reason could be that ERMS for organisational KMS is unstructured and technically not innovative (Choi, Ahn, Jung, and Kim 2019; Sun, Liu and Ding 2019). Looking further, Liu and Ding (2019) observe that the implementation of document and content management systems for organisational KMS faced by most organisations

lacks an understanding that it requires considerable contact between employees and KMS design. Demir, Budur, Omer and Heshmati (2021) state that technology is not an appendage to organisational product and service development, but it is central to its functionality. These authors note that, although organisational DMS is critical to the success of organisational KMS in particular, its functionality and that of MT companies depends on documents that contain OK enabled by technological tools and timely implementation.

By the collection and systematic organisation of documents, OK is given to employees, departments (internal), customers and key stakeholders by providing processed OK (preserved) automatically and electronically stored in databases and repositories (Demir *et al* 2021). This process saves time, reduces costs and keeps only relevant OK to run daily organisational undertakings of businesses. The method further enables presentation, format configuration (such as portable document format), and Microsoft applications (Word, PowerPoint and Excel) (Adithela, Christie, Marru, and Pierce 2018; Demir *et al* 2021). These are controlled and unstructured structures which use hypertext mark-up language and digital formats, such as video, pictures, folders and record stores in system memory and timely and remote storage accessibility (Kamatula 2018; Demir *et al* 2021).

Applications or systems are intended to allow geographically dispersed employees to access larger OK repositories of multimedia electronic documents containing numerous mono-media OKs, such as text, audio, images, and videos containing OKs (Centobelli, Cerchione and Esposito 2019). OK repositories assist the organisation in systematising and improving OK management using tools such as the World Wide Web, electronic books and manuals and collect OK and store it in repositories for easy access (Centobelli, Cerchione, and Esposito 2019; Kamatula 2018; Demir *et al* 2021). These scholars point to organisational OK stores such as engineering books, which are computer electronic files turned into electronic memory containing OK used on community practice platforms, depending on employee attitudes to their use.

OK repositories are affected by employees' normative behavioural and control beliefs and employees who contribute OK to repositories (Stewart and Osei-Bryson 2012; Kamatula 2018; Demir *et al* 2021). Therefore, this was one of the critical factors to explore in this study. It was thought that MT companies ought to engage in reward,

intrinsic motivation, social inclusion, culture, management support and extrinsic motivation to influence sharing and contribution of OK into repositories (Centobelli, Cerchione and Esposito 2019). This understanding is echoed further that cognitive load, system usage by employees and internal skills result from automation depending on less conscious effort. An employee using repositories depends on his or her beliefs and confidence that the systems will offer benefits and are influenced by personal beliefs and psychological, social and company contextual factors (Centobelli, Cerchione and Esposito 2019; Corea 2019).

Developing feasible and practical online multi-media tools to support applications hinges on the complete life cycle of e-documents, including indexing, retrieval, delivery and presentation, and depends on a unified framework (Corea 2019; Centobelli, Cerchione, and Esposito 2019; Demir *et al* 2021). These authors list the following issues as challenges faced by organisations with document and content-management systems:

- (a) developing a model to use for capturing media-synchronisation specifications;
- (b) coming up with a conceptual framework, such as video, audio and pictures of OK;
- (c) developing and designing powerful indexing, searching, accessing and organisation for multi-media databases; and
- (d) design of an efficient multi-media query language that permits imprecise match retrieval.

The use of document and content-management systems for organisational KMS seems fundamental to KM practice in MT companies. Employees are influenced by the perceived quality, ease of use, sharing norms, OK availability and incentives related to organisational electronic knowledge repositories (Corea 2019; Choi, Ahn, Jung, and Kim 2019; Sun, Liu and Ding 2019; Demir *et al* 2021). Uncertainty management in DMS and CMS creates problems in almost every area of online OK management for MT companies, which must be leveraged for successful and efficient organisational KMS for KM processes. This study investigated content infrastructure, creation, storing content, indexing, search, retrieval, archiving, revisiting and managing content end-to-end for organisational KMS in selected MT companies in Namibia.

### 3.7.3 Organisational Knowledge Portals

Apart from the critical role of OK portals in organisational KMS for knowledge management, Loebbeckea and Myers (2017) and Wimmer, Du and Rada (2019) highlight some alarming figures in the literature regarding the challenges and insurance resources associated with OK portals prior to the 21<sup>st</sup> Century. These researchers emphasise the importance of identifying current issues confronting unenlightened organisations that jeopardise future formalisation and standardisation of models or frameworks such as OK security for cross-platform workers. Distinctive functionality provided by OK portals includes information/OK provision, production (visualisation) and querying via organisational KMS (Loebbeckea and Myers 2017). OK portals have the ability to provide a rich and sophisticated shared-information workspace for the creation, sharing and use of knowledge inside companies (Calegari, Avogadro and Dominoni 2017). Knowledge portals are self-contained configurable user-interface constituents for systems that allow us to create customisable portals in which each service is encased as a separate component that can only be included or withdrawn without affecting the specified portal's new framework foundation (Calegari, Avogadro and Dominoni 2017).

Building OK portals from the above perspective is a multifaceted accountability for an organisation (Dávideková and Hvoreck 2017) like MT companies in Namibia. OK portals are crucial elements of effective and efficient organisational KMS for KM in MT companies and are essential to implementing them. OK portals are important measures that assist the organisation in providing integration and amalgamation right of entry to individual employers of multiple systems by a single-entry plug (Dávideková and Hvoreck 2017; Wimmer, Du and Rada 2019). Portals facilitate the performance of individual knowledge employee's activities which we illustrate from a high-level perspective. In the broadest sense, individual knowledge employees collect organisational knowledge pertinent to a project, structure it, explore and analyse it, generate solutions that address particular task objectives and share and disseminate their findings with other individual knowledge employees (Wimmer, Du and Rada 2019). Bhatt (2019) observed that all organisational knowledge portals need users to log in. Regardless, portals may be internal or external. For instance, an incognito individual employee will be routed to a user account before being enabled to see the employee portal's organisational knowledge, while a client's request would lead visitors to the full site and will need authentication only during the purchasing decision.

According to Loebbeckea and Myers (2017) and Calegari, Avogadro and Dominoni (2017), the OK portal's real implementation offers a valuable insight into its capabilities for mobile telecommunication companies in Namibia. These authors proceeded to state that it describes the front-end interface for two modules/portlets that were created to assist users throughout their search for OK, using prototype versions that communicate through a grid of navigation and a search engine. Furthermore, the authors emphasise that both modules take context and customisation into account. The context was used to determine the user's market in order to filter out relevant OK, whereas the customisation features were used to highlight the user's interests and preferences in order to speed up searches. The Ontology Design Patterns-user profile is used to collect the necessary user OK for customisation and contextualisation, according to the researchers (Calegari, Avogadro, and Dominoni 2017; Choi *et al* 2019).

OK portals are web-based, fully automated emulations of a highly proficient, well-motivated call-centre operation. They act as an elegant and efficient way to conduct most, if not all, business interactions, an electronic interface to the Web or at least to Web-technology-based private networks (extranets) to serve both external and internal users (Dávideková and Hvoreck 2017; 2018; Choi, Ahn, Jung and Kim 2019). It is important, therefore, to understand that the OK portal presented in this study under this section goes beyond conventional knowledge portals in that it addresses both customisation and semantics in order to link people with knowledge (Calegari, Avogadro and Dominoni 2017). These authors continue to state that personalisation aims to supplement the user's context by analysing the user's knowledge (that is, preferences, behaviours) and developing procedures that use this knowledge to tailor search results to the user's information needs.

OK portals seek to add value to organisations through the practical application of storing organisational information and knowledge in multiple locations, exploiting and sharing it in real-time, and assisting companies in organically growing their knowledge base (Loebbeckea and Myers 2017; Choi, Ahn, Jung and Kim 2019). These authors further state that in a typical organisation, 75% of internal knowledge is trapped in individual emails and desktop computers. This shows that the most critical and compelling thing is to use the internet, intranets, browsers, data warehouses data-

filters and software services to systematise, facilitate and expedite firm-wide OK management (Feijoo, Ordaz, and López 2015; Loebbeckea and Myers 2017). Organisational KM systems infrastructure creates a technological environment that permits and contextualises a base infrastructure composite of the sophisticated nature of OK and supports and facilitates handling of OK via document management systems, search engines and visualisation technology (Dávideková and Hvoreck 2017; Feijoo, Ordaz, and López 2015; Minu 2018).

As indicated above, according to Bhatt (2019), the purpose of portals is to facilitate the acquisition of essential organisational knowledge by decreasing the difficulty of getting it. The author further states that portals are being developed as the most viable technique for assisting businesses in reaching their consumers and facilitating staff cooperation. From this vantage point, exploring organisational knowledge portals was important for mobile telecommunications companies in Namibia. It is, therefore, essential to understand that portals simplify the right of entry to online organisational knowledge stored in different application systems in the organisation and make a personalised screen for online OK available to individual employees (Choi, Ahn, Jung and Kim 2019). A portal focuses on each employee who uses it to benefit the organisation (Wimmer, Du and Rada 2019). Organisational knowledge portals have been developed as the most capable tools that facilitate collaboration among employees and exploit intellectual capacity, generating business value and a competitive edge (Feijoo, Ordaz, and López 2015; Wimmer, Du and Rada 2019). The implementation of portals for organisational KMS assists planning and analysis (Choi *et al* 2019). The planning stage is based on rationalisation of an IT project, such as building organisational knowledge portals, lack of access to OK, information overload and lack of analysis to integrate multiple sources analysing 'Big Data' (Minu 2018; Wimmer, Du, and Rada 2019; Choi *et al* 2019).

During the process of implementing OK portals, questions such as "what" arise, based on the understanding of how the organisation of organisational KM systems ought to improve MT company processes. That is, OK portals facilitate sharing of organisational knowledge and improve timely access to organisational decisions (Choi *et al* 2019; Wimmer, Du and Rada 2019). The same authors understand that building portals are also based on (a) who will use them and (b) what the employees as users require. As a result, the requirements of employees (users) linked to an OK portal are

critical because they regulate systems based on their characteristics (Choi *et al* 2019; Wimmer, Du and Rada 2019).

The OK portal should house large amounts of data and information and the system should be adaptable to information deposited by individual employees, access and location of OK, and warehouses must host OK portal ontologies and metadata requirements (Minu 2018; Wimmer, Du and Rada 2019). The second question has to do with the responsibilities and features of the system (Wimmer, Du and Rada 2019). Organisational knowledge portal harmonisation and auxiliary OK processes grounded on features such as core capabilities (tools to support OK development) rest on:

- **Taxonomy** - relates to classification schemes by grouping identical bits and pieces of OK into broad topics that enter a wider chain of command for the benefit of search, support, navigation, data/information or OK control, mining, schema management, personalisation, and information delivery.
- **Publishing** - entails the process of assisting content formation, permission, inclusion and takes account of the capacity to solidify or publish documents in alternative set-ups such as hyper-text mark-up language (HTML), portable document format (PDF) and extensible mark-up language (XML) in OK portal content collection.
- **Search** - relates to the online document produced by an individual employee(s), associates, consumers and competitors, valuable information to MT companies and essential search capabilities across multiple information repositories.
- **Personalisation** - refers to the individual employee's capability to transform their interfaces and preference specifications and system capacity to use such information or data with dynamism and deliver specific content to employees to resolve relevant information or OK to perform their responsibilities.
- **Integration** - the portal's capability, presenting a unified standpoint of organisational information that assimilates information from various repositories having the organisation's information diffused transversely through many sources within MT companies.

- **Collaboration** - the process in an MT company's capability to produce a collective online community such as online collaboration, drawing together conventional content and services such as threat conversation, project management tools, task list calendar, document online sharing or instant messaging to which employee(s) have rights of entry.
- **Support** - a well-operated corporate portal consisting of security, profiling and scalability. These are necessary tools secure in retrieving a variety of resources, sending personalised data, information and OK to another employee and expanding the support of an increasing number of employees on the system that allow modification to fit the problem (Benbya, Passiante, and Belbaly 2004:210-211; Choi *et al* 2019; Feijoo, Ordaz and López 2015; Loebbeckea and Myers 2017).

What emerges from the aforementioned is that an OK portal is one of the vital elements of organisational KMS, which, when implemented, brings an effective and efficient function for organisational KM in MT companies in Namibia (Feijoo, Ordaz, López 2015; Loebbeckea and Myers 2017; Choi *et al* 2019). Organisational knowledge available on the portal provides for the development of OK creation and transformation based on its functionality and ability to orchestrate the sustenance of OK development stages to equip employees with new OK to perform successfully (Loebbeckea & Myers 2017). Therefore, portal implementation must be viewed as the mechanism to augment and intersect resources for OK to be disseminated continuously within MT companies' requirements for employee, team-based management and be receptive to change for OK generation.

These tools enable the acquisition, synthesis and creation of OK, leading to storage (in manuals, databases, case studies, reports, corporate processes, and rules), distribution (depending on the culture and the amount of explicit organisational knowledge available), usage (retrieval of organisational knowledge), solving organisational problems, making decisions, researching ideas and learning (Dávideková and Hvoreck 2017; Feijoo, Ordaz and López 2015; Minu 2018; Loebbeckea and Myers 2017). Understanding an organisational knowledge available portal ought to be determined from an employee's perspective concerning organisational KMS as essential (Dávideková and Hvoreck 2017; Loebbeckea and



Myers 2017; Choi *et al* 2019). From the perspective of an individual employee, this study investigated the intention and motivation for implementing OK for organisational KMS implementation in selected MT companies in Namibia.

### **3. 7.4 Organisational Community of Practice Systems**

An online community of practice involves groups of individuals who contribute to a concern or a passion and learn how to do it better as they interact online using technological devices (ElShaer, Calabrese, Casanova and Huet 2016). It is a web of practice that binds all practitioners' mutual interests in a particular common interest or practice (Carvalho-Filho, Tio, and Steinerte 2019). Employees spend a third of their time searching for information and assisting others and are more likely to turn to a colleague than a database (Friedrich, Becker, Kramer, Wirth and Schneider 2020). Therefore, the value and capacity of an online community of practice is good and directly results in innovation via organisational KMS with reference to MT companies in Namibia. This formula varies from employee to employee in an online community and could produce various conclusions at different times and engagements with different employees (Rezaei, Jafari-Sadeg and Bresciani 2020). Stephenson (2016) stated that affiliates of COPs advance competencies by merging three organisational basics: (1) responsibility to dual innovativeness, (2) reciprocal engagement and (3) collective repertoire of shared resources. From this perspective above, it was imperative, therefore, to analyse what drives or stimulates an online community of practising mobile telecommunications companies' members in Namibia to continue participating. In the case of Namibia's MT companies, they should be founded on critical elements such as personal development, collaborative peers and community achievements, all of which are supported by solid infrastructure, management and financing, as recommended by Kastens and Manduca (2018).

From the above perspective, Stephenson (2016) and Torres, Ferraz and Santos-Rodrigues (2018) opine that successful online CoPS events are contingent upon management, connectivity, association, strategies and artefacts developed collaboratively to establish learning circles. Participants in communities of practice prepare and learn by executing and collectively addressing severe organisational teething problems with their KMS tools (Stephenson 2016:4). Companies that rely heavily on OK may choose to establish an online community of practice to harness the quality of OK for better decision-making, improve performance and promote intelligent

and creative design (Punpukdee 2020; Nurdin and Yusuf 2020). An organisation that successfully implements knowledge management by generating and using OK via the use of an online community of practice (Torres, Ferraz and Santos-Rodrigues 2018; Punpukdee 2020; Nurdin and Yusuf 2020) would be beneficial if it were shuttled between four upper clusters. When it comes to employing online CoPS, organisations ought to be oblivious to their surroundings for better management and integrate multiple KM systems, data, and system architecture (Punpukdee 2020; Nurdin and Yusuf 2020; Friedrich, Becker, Kramer, Wirth and Schneider 2020). Thus, a thorough knowledge of these difficulties in Namibia's MT companies was critical to spell out the success of KMS for KM efforts concerning online CoPS. This study therefore looked into the efforts made, the problems encountered and the instruments available for the organisational CoPS for KMS in Namibian MT companies. As a result, the research examined the aforementioned knowledge via the lens of organisational KMS rather than via other methods of reaching OK.

### **3.7.5 Organisational Knowledge-Groupware Systems**

Groupware is a standard term for generalised computer utilities for the use of organisational collaborative or collective workgroups (Friedrich *et al* 2020), via organisational KMS for KM practice. Wang and Wang (2016) assert that groupware collaborative tools such as emails, chats, electronic forums and conferences provide and define communication and collaborative services for different types of OK. Organisation groupware tools are used as organisational KMS support for employee interpersonal work, to increase work productivity (Ncoyini and Ncoyini 2020; Friedrich, Becker, Kramer, Wirth and Schneider 2020). Organisation KMS tools, such as groupware systems, certify personnel to generate electronic documents of OK artefacts (videos, directives, and coupons), store them, and assemble them (Friedrich *et al* 2020). Therefore, groupware in MT companies could be a two-way employee tool that needs considerable employee involvement during implementation for effective usage. According to Hidiroglu (2020), groupware structures are internet applications that help business employees to collaborate while carrying out a task from one location to the next. The author also states that *concurrent software* refers to groupware solutions that enable real-time collaboration among professionals. According to Friedrich *et al* (2020), groupware solutions enable workers to collaborate electronically on calendars, email, knowledge and corporate events. Islam, Islam and Razzak (2020) argue that each member of the organisation has access to the database of other

people's broadcast lives and can view and retrieve it. Alternatively, groupware systems are referred to as *collaborative software* or *computer-supported collaborative work* (Hidiroglu 2020).

Groupware systems were critical elements in weighing success for organisational KMS for KM practice. It was, therefore, crucial to paint the picture of how MT companies implemented groupware concerning organisational KMS for KM practice. This was with reference to exploring organisational culture supported by senior management in enforcing OK sharing, dissemination and collaboration into KM systems as directed by Mies, Bonvoisin, and Stark (2020) and Cerchione, Centobelli, Zerbino, and Anand (2020). The understanding was that groupware is designed to facilitate a fluid, collaborative environment based on coordination and communication (Hidiroğlu 2020; Raudeliuniene, Albats and Kordab 2020; Islam, Islam and Razzak 2020). This was about how to smooth the transition between employees and workgroups to support employee interpersonal interaction using groupware. Proper groupware systems could take advantage of these systems in MT companies' practice. In this study, it was important to explore developing a new MT strategic trade prototype by adding groupware systems and relating their disadvantages and advantages to MT companies' communication and strategic management of OK via organisational KMS.

Groupware is demonstrated by showcasing that the process of increasing effectiveness and efficiency, adopting and implementing organisational KM systems, is predicated on a strategy that is manifestly deficient in social factors within a group or team (Cardoni, Zanin, Corazza and Paradisi 2020; Harb and Abu-Shanab 2020; Mansoori, Salloum and Shaalan 2021). Other reasons are poor employee relations, inconsistency and discrepancy between work and benefits, breakdown of intuitive decision-making (design stage), underestimation of evaluation of applications such as systems use, design and assessment (Shukla and Parekh 2020; Nakamori 2020; Bakos 2020). This study, therefore, sought to establish if these factors might hinder the implementation of organisational KMS in MT companies in Namibia in relation to groupware. The other objective was to explore and understand how groupware systems are generally classified into dualistic clusters, such as synchronous and asynchronous groupware, based on whether associates collaborate in real-time (Hidiroglu 2020). The researcher showed that synchronous groupware supports

collective online presentations via video calls or online discussion and may encourage online expositions from different locations simultaneously.

With reference to the understanding above, the researcher was of the opinion that implementing groupware does not automatically encourage its use by employees. It needs employee involvement and support (for greater functionality). However, issues such as a lack of flexibility, integration, adoption, critical mass benefit (driven by its use and sufficient group use) and employee adoption (employee use is based on rewards in place for its success) are critical factors when determining how successful groupware is (Cardoni *et al* 2020; Harb and Abu-Shanab 2020; Raudeliuniene, Albats and Kordab 2020; Islam, Islam and Razzak; Mansoori, Salloum and Shaalan 2021). The researcher believed that understanding these aspects as significant to the development of organisational KMS via groupware systems was worth exploring. This was in relation to the benefits associated with groupware systems, which are more likely to increase individual employee utilisation. As a result, it was critical that employees be encouraged to use it in order to reap the benefits. It was also important to understand that the advantages of groupware systems are reliant upon a critical mass of individual employee users (Ncoyini and Ncoyini 2020; Friedrich *et al* 2020; Mies, Bonvoisin and Stark 2020) in relation to access to organisational knowledge, to induce employee performance and a competitive edge. The processes described above are required to comprehend how groupware gains traction. Groupware systems implementation via organisational KMS in MT companies was based on identifying the scope of the focus on transformation, creating and investigating methods to expand their capabilities, and accumulating consequences for the development and transformation of acceptable collected, stored and shared data (Raudeliuniene, Albats and Kordab 2020; Islam, Islam and Razzak 2020; Cardoni *et al* 2020). Groupware can be used to support the operations of MT companies through the use of password-protected documents, online schedulers for meetings and resource allocation, file distribution and dissemination, e-newsletters, automated emails, online calendars for employees' groups, online collaborative writing systems, video communication systems, discussion or chat systems and wikis (Harb and Abu-Shanab 2020; Mansoori, Salloum and Shaalan 2021). The establishment of acceptable groupware systems was critical to comprehending organisational KMS in relation to the objectives stated in Chapter 1.

### 3.7.6 Organisational Data-Mining Systems

Data-mining methods may be used to extract and uncover valuable and meaningful knowledge from vast quantities of data throughout the KM process (Natek and Zwilling 2014). This author went on to say that, in the modern era, knowledge businesses and society as a whole place a high value on data mining. This method continues to pique the interest of data analysts and it is currently recognised as a newly developed analytical tool. This is to ascertain the most effective use of existing guidelines and to design new ones to promote comprehensive decision-making using data mining. From this perspective, organisations rely on organisational KMS tools, such as organisational data-mining systems, to organise information. In this respect, data mining is a critical component of the OK discovery process in relational databases. As a result, it was critical to comprehend how data mining facilitates organisational KMS in MT companies. This was in reference to how it aids in the conversion of information into a meaningful OK. The KM function is then to coordinate and organise these OK assets methodically inside the organisation (Selamat, Prakoonwit and Khan 2020). In this study, organisational data mining was a method of understanding and transforming data and knowledge, looking for significance, innovation, effectiveness, and simplicity in creating new OK (Prakoonwit and Khan 2020; Junior, Gobbo, Fukunaga, Cerchione, and Centobelli 2020).

Demigha (2020) suggests that it is crucial that basic organisational KMS in big data analysis use data from both internal and external sources. Data and information flow via a stream dispensation instrument when real-time big data analysis is required. Raw information distributed on a file system, also known as a data lake, is dealt with on the spot. It is vital that knowledge is well structured and managed to produce the best results (Demigha 2020; Prakoonwit and Khan 2020; Junior *et al* 2020). To maximise the advantages of organisational KMS, MT companies must dive into the use of both data mining for KM. It is also critical for MT companies to be aware of this in a competitive environment and pertinent in a commercial enterprise, as suggested by Selamat, Prakoonwit, and Khan (2020), Demigha (2020) and Prakoonwit and Khan (2020).

With the above stated, it is essential to find effective OK patterns relevant and appropriate to the creation of a new OK using data-mining tools. *Effectiveness* refers to patterns that relate to the role of the employee; their responsibilities, therefore,

support or assist with specific tasks or duties by organisational KMS for KM activities (Junior, Gobbo, Fukunaga, Cerchione and Centobelli 2020; Centobelli, Cerchione and Esposito 2018; Meneghello, Thompson, Lee, Wong and Abu-Salih 2020). Data mining is the retrieval of explicit OK and transformation into tacit OK (internalisation process) to induce competitive products, services and decision-making (Ekambaram *et al* 2018). This is done using techniques or systems to analyse data and bring about new insight to support functions such as market analysis and decision-making. In short, there is a content basis for MT companies to explore the presentation of data for organisational KMs to improve these cutting-edge technology benefits. To remain competitive and relevant, MT companies in the telecommunications sector must be cryptocurrency aware (Selamat, Prakoonwit and Khan 2020). Hence, it was seen as an essential aspect that induces innovation and organisational success. These are based on pattern discovery, trend detection (dynamic trends, data dimensionality reduction and visualisation, which are tools used to understand data; Demigha 2020; Prakoonwit and Khan 2020). Most the scholars referred to above agree that data comes in two forms, descriptive and predictive. The descriptive form entails the process of finding out patterns, that is, product configuration developed in volumes of customisation applications) and the predictive form entails developing and building models augmented to predict or determine product or service outcomes ( Selamat, Prakoonwit and Khan 2020; Menaouer, Mohammed and Nada 2020; Sensuse, Rochman, Al Hakim and Winarni 2020). In MT companies, the discovery of organisational data mining depends on the following processes:

- (a) Data collection - data selected to formulate the data set for the organisational problem under investigation.
- (b) Data processing - the removal of unnecessary values to cause and correct defined errors.
- (c) Data transfer - the digitalisation of qualitative attributes and normalised data.
- (d) Data mining - collecting suitable organisational data-mining algorithms and the detection of submerged rules and patterns to be evaluated and interpreted to create new rules.
- (e) Interpretation - requires a nuanced interpretation.

Although it produces a substantial amount of evidence for data clarity, data mining is helpful to OK management and is certainly understandable (Mori and Kosemura 2002:13; Menaouer, Mohammed and Nada 2020; Sensuse, Rochman, Al-Hakim and

Winarni 2020). Data mining is based on the comprehensiveness of data processing to create and transform OK to support employees, induce innovation and reduce organisational risks to improve organisational decision-making (Menaouer, Mohammed and Nada 2020; Senses, Rochman, Al Hakim and Winarni 2020).

OK is acquired from an online filing cabinet using data mining and an electronic folder with reference codes. In that line, data mining is based on the contextualisation of the essence of organisational data, that is, segmentation (disaggregation of data into meaningful sub-groups or classes); content description (context description and concepts); dependency analysis (discovering models that tabulate significant dependencies between product(s) and service(s); and classification (labelling data) to predict data definition and summarisation accurately (describe data characterisation in elementary and aggregation formation) (Meneghello *et al* 2020; Shirowzhana, Limb, Trinderb, Li and Sepasgozar 2020; Novak, Breznik and Natek 2020; Menaouer, Mohammed and Nada 2020; Senses, Rochman, Al Hakim and Winarni 2020). It is from this perspective that data mining has two key objectives, which are to generate forecasts and to discover novel and different insights (Selamat, Prakoonwit, and Khan 2020).

From this vantage point, it is important to show how data mining has become very prominent in academia due to the availability of many “affordable” portable or desktop data-mining applications (Natek and Zwilling 2014; Hjelmara and Møllerb 2015; Zekić-Sušac and Has 2015). One may observe the following as an instance of this assessment of several tools: Microsoft Excel, SPSS, Weka and Protégé as a knowledge acquisition system, and Rapid Miner are critical tools for evaluating data-mining systems used by Namibia's mobile telecommunications companies (Natek and Zwilling 2014; Zekić-Sušac and Has 2015). Some of them (for example, the MS Excel Mining tool) may already be accessible to departments, allowing them to use their current Excel expertise, as suggested by Hjelmara and Møllerb (2015). That is why it may be included in the study. In order to investigate organisational KMS in Namibian mobile telecommunications companies, Weka was chosen as an example among various desktop DM tools because it enables data-mining analysis in a way that MS Excel does not, as suggested by Natek and Zwilling (2014) and Hjelmara and Møllerb (2015).

Data mining, therefore, relies on organisational KMS to extract algorithms to create new OK, data warehousing, data patterns (critical for processing and organising, cleaning and preparing data for mining lenses to computer network infrastructure for OK dissemination and sharing; Sensuse *et al* 2020; Selamat, Prakoonwit and Khan 2020). It appears that data mining is a crucial element with regard to accessing information and assists employees in analysing and digesting data and information to induce competent and efficient organisational decision-making (Aggarwal and Zhai 2012:2). In other words, this perspective draws on issues of data extraction from data encountered; the main barriers to data mining from the starting point of the algorithm, the text summary, were essential for the research. This is in apparent contrast to Aggarwal and Zhai (2012) and Sensuse, Rochman, Al Hakim and Winarni (2020). They propose that summarised electronic text documents assist in obtaining a thumbnail description of an e-text document on a particular topic of interest or project.

According to the above interpretation, the application of organisational KMS in relation to data mining is dependent on the distribution of structures that focus on OK delivery to specific workers in locus to:

- (a) knowledge locator systems (assist in identifying employees with desired expertise within the organisation);
- (b) portal systems (web page); and
- (c) Electronic or print newsletters that generate collaboration and meeting support systems for organisational KM in the context of MT companies.

This thesis looked at these issues and how they relate to understanding that data mining through organisational KMS for KM practice is critical in selected MT companies in Namibia.

### **3.8 Literature Review on Organisational KMS Usability and Enablers**

The objective of organisational KMS is to speed up the creation, capture, sharing and successful use of online OK in organisations. Organisational KMS and its influence on an employee's life have stimulated the exploration and practice of usability. The significant feature of an efficacious collaborative system is allied to employees' competence and satisfaction when networking with the organisational KMS (Castro, Costa, Barcellos and Falbo 2020). Without individual employee use, organisational KMS is unproductive and not a solution for the management of online OK (Tretten and Kari 2014; Alghafis, Alrasheed and Abdulghany 2020). The above underscores the



importance of employee involvement in different phases during organisational KMS implementation for effective use. It is also important to note that the purposes of organisational KMS tools can be varied and comprehensive, each with its own designed focus on contributing to organisational KM practice.

Factors that assist in successful KMS implementation are employee individualities, job scheme/assignment features, technology individualities (simplicity of use, features of individual employee-computer interface and flexibility and efficiency of search instruments), structural systems and individual cultural factors (Tretten and Kari 2014; Alghafis, Alrasheed and Abdulghany 2020; Liang 2020; Japanordic and Hirata 2020; Haider and Kayani 2020; Wang and Wang 2020). These authors point out that, while organisational KMS implementation tools are necessary, it is critical to investigate their individual benefits and limitations. It was, therefore, important that the study explores these requirements and was carefully planned to accomplish the necessary goals for the MT companies in Namibia. The following section discusses issues related to organisational KMS usability and the attitudes of individual employees to organisational KMS as essential factors for successful KM practice.

### **3.8.1 Usability of Knowledge Management Systems**

The growth in organisational KM system usability has enhanced the advantages for both individuals and organisations (Liang 2020; Ayatollahi and Zeraatkar 2020). According to Tretten and Karim (2015), the importance of system usability is increasing all the time, and Namibia's mobile telecommunications industries should establish an organisational KM system necessitating participants to identify usability when creating, acquiring, activating or communicating effectively. Usability refers to the degree to which an organisation's KM system can be utilised effectively, efficiently and satisfactorily by individual employees in a particular context of usage (Tretten and Karim 2014; Xie *et al* 2020). In this study, organisational KMS implementation and its particular aspects of user experience were grounded in accessibility subsystems, with effectiveness defined as the precision and completeness with which specified users could attain specified goals in specified contexts (Tretten and Karim 2014; Xie *et al* 2020). These authors continue by stating that *efficiency*, on the other hand, refers to the resources expended in conjunction with the precision and completeness with

which goals are accomplished, whereas *satisfaction* refers to the comfort and acceptability of the work system by its users and other people impacted by its use.

According to the above understanding, the specific components of usability that influenced the exploration are the usefulness, precision and comprehensiveness of organisational KMS implementation in selected mobile telecommunication companies in Namibia, with which clarified subscribers can accomplish defined objectives in stipulated contexts, reliability as the tools exerted in relation to the precision and comprehensiveness of goals achieved, and contentment as solace and applicability, according to Tretten and Karim (2015) and Xie *et al* (2020). This pertains to user happiness and a high level of “experienced” pleasure often results in superior user performance compared to systems that are “technically” more efficient to operate but result in dissonance in their usage, as proposed by Tretten and Karim (2015), Liang (2020) and Ayatollahi and Zeraatkar (2020).

From this vantage point, it was recognised that an organisation's KMS's efficacy and utility are contingent on both individual workers and organisations, especially senior management. The brilliance of an organisation's KM system is dependent upon acceptable value, employee acceptance, and visible advantages (Al-Khoury2014; Sardjono 2020; Lee, Choi and Lee 2020). In MT companies, senior management was believed to create circumstances conducive to employees practising and honing their skills while adhering to the organisation's KMS standards. The understanding was that employees should be encouraged to contribute to the online standard of conduct database. Additionally, it was believed that they want immediate access to important information and tools that would encourage them to work efficiently. Employees should be able to work in a safe and healthy workplace while still meeting their physical and behavioural standards (Maramba 2020).

Prior studies by Wang and Wang (2016), Li, Liu and Liu (2016), Wang and Wang (2020), Maramba (2020) and Haung (2020) caution against the implementation of organisational KMS without bearing in mind the employee and organisational perspectives that act as barriers to system implementation. The above-mentioned studies were reviewed with reference to organisational KMS usability in selected MT companies in Namibia. It is from this perspective that Wang and Wang (2016), Maramba (2020), and Haung (2020) expand the understanding by stating that

organisational KMS implementation hinges on fundamentals such as organisational culture, structure, process and employee factors for successful utilisation. The social context is influential in the KM, where the desires and successful KM-linked behaviours of individual employees are concerned (Maramba 2020; Haung 2020). The success of organisational KM systems may be dependent on individual employees because, in organisations, some employees may be willing to seek approval, whereas others may be dependent on organisational culture and processes (Alghafis, Alrasheed, and Abdulghany 2020; Liang 2020). From this perspective, it was important to explore and determine the usability of organisational KMS for KM practice in mobile telecommunication in Namibia.

Organisational KMS usability constitutes considerable effectiveness and efficiency concerning OK identification, capture, creation, classification, storage, sharing and access to induce performance (Alghafis, Alrasheed and Abdulghany 2020; Liang 2020). It seems that organisational KMS success details the individual employee's perceived benefits (Elahi 2020; Raman 2017; Yadav, Pant and Seth 2020). This would be in terms of accessible OK with specified and precise OK, which is defined by the user's effort in terms of learnability, ease of understanding, and operation (Haider and Kayani 2020; Wang and Wang 2020). Ease of use re-count for utilities using the discovery of OK content superiority concerns the efficiency of generating and packaging OK. The virtual community highlights the utility of definitions and produces OK (Dong, Hung, and Cheng 2015; Haider and Kayani 2020; Wang and Wang 2020). Such understanding is essential to the study of organisational KMS for KM practice in MT companies in Namibia.

While researchers around the world have developed and investigated organisational KMS in other parts of the world, there is still a lack of understanding of the appropriate circumstantial methods to implement and use organisational KMS in relation to inducing innovation via organisational, technological, environmental and interpersonal levels in organisations (Dong, Hung, and Cheng 2015; Alghafis, Alrasheed, and Abdulghany 2020; Liang 2020; Japanordic and Hirata 2020). This situation has left the exploitation of organisational KM technologies complex and not well understood by many organisations (Ouriques, Wnuk, Gorschek, and Svensson 2019; Özlen and Handzic 2020; Demir, Budur, Omer and Heshmati 2021). Limited by scientific influence, organisations might fail to understand challenges related to people,

organisations, technology and the environment, resulting in the expensive implementation of the KMS, compromising efficiency and effectiveness, let alone innovation or competitive advantage (Yee, Tan, and Thurasamy 2019; Ullah 2020; Haider and Kayani 2020; Wang and Wang 2020; Liang 2020).

As aforementioned, most organisations could face more far-reaching consequences exacerbated by fixing technologies and their tools without addressing or understanding employee behaviour and attitudes, processes and culture that feed into mature KMS development (Wahl 2017; Yee, Tan, and Thurasamy 2019; Ullah 2020). For any organisation, failure to eliminate these challenges results in a poor understanding of KMS end-user tools, lack of information on who knows what and preservation of knowledge from others, leading to the unavailability of expertise in systems and poor decision-making in solving organisational problems (Döring and Witt 2019; Cheng 2020; Helmi 2020; Wang and Wu 2020; Yee, Tan, and Thurasamy 2019; Ullah 2020). This state of affairs aggravates MT companies' OK-related activities and insufficient innovation and competitive advantages, leading to a lack of contribution to Namibia's socio-economic development.

Karlinsky-Shinchor and Zviran (2016) and Tsai and Hung (2016) categorise organisational KMS in an organisation to support diverse prerequisites of individual employees, such as free access and structural provision, as important for issues of positive usability. The free access method details a situation in an organisation where understanding access to OK is unstructured and possibilities demanding to forecast using tools (Tretten and Kari 2014; Alghafis, Alrasheed and Abdulghany 2020). These authors above state that search capabilities and access to OK via the internet benefit from online databases, social media and work tools (emails, spreadsheets and presentation tools and data warehouses). Structured systems entail organisations and undertakings such as portals, algorithms, document/content management systems, business process management and monitoring systems and collaboration tools (Pinterič 2020; Kesavan 2021). These concepts were thought to be important for understanding organisational KMS implementation in selected MT companies in Namibia. According to Chow (2013), individual employees, as OK depositors or contributors and seekers, operate temporarily on the user interface. Issues related to poor use of tools and sites that are difficult to navigate and understand make them challenging to use. Tretten and Kari (2014), Alghafis, Alrasheed and Abdulghany

(2020), and Cheng and Chang (2020) argue that it is important to understand factors related to usability and OK architecture in the structure to navigate levels of complexity and consistency of the OK structural design.

Furthermore, the organisational KMS text celestial navigation capabilities and page layout should be relevant to specific employees as users in order to guarantee that critical functions and sites have a strong feeling of OK location (Selamat, Prakoonwit, and Khan 2020, Shukla and Parekh 2020; Nakamori 2020; Bakos 2020). Developing a visual method for highlighting prioritised level tools and guaranteeing functionally straightforward navigation for locating and searching are critical characteristics that any KMS should have (Nakamori 2020; Bakos 2020). This could ensure that organisational KMS characteristics are well-aligned with well-known qualities, simplifying their usage. As a consequence, this research examined these ideas in connection to the deployment of organisational KMS in MT companies.

From this point of view, an organisation's KMS should demonstrate actual use in terms of establishing and engaging an efficient individual employee experience throughout the deployment phase (Garfield 2018; Punpukdee 2020; Nurdin and Yusuf 2020; Friedrich *et al* 2020). This is to develop systems that are responsive to the requirements of individual workers as users while also taking into account the organisation's KM strategy, which is based on the employees' needs, limits and preferences (Punpukdee 2020; Nurdin and Yusuf 2020). Driven by the need to understand that organisational KMS implementation is a critical enabler and can act as a barrier to a successful KM initiative, the barriers to its effective and efficient implementation in an organisation are worth understanding, which is why this study was critical and timely (Chandna and Iusco 2018; Cheng and Chang 2020; Sayyadi 2020).

Garfield (2018) suggests that the introduction of OK should include responsive features in relation to OK map reading, search communication, site assistance, indexes, maps linked to tools from the perspective of good usability, considering individual employee interfaces. Punpukdee (2020) and Nurdin and Yusuf (2020) support the understanding that a well-designed or implemented organisational KMS is an employee- and organisation-dependent and context-specific for functionality and experience. Individual employees' expertise is essential in self-serving to create the

accessibility of OK from the systems (Chandna and Lusco 2018; Ghasemi and Valmohammadi 2018). As a result, an organisation ought to segment employees during the implementation of KMS, concerning demographic, psychographic profiles (looking at attitude and perception of the and towards the systems), contextual enquiry (context of an individual employee organisation's daily work activities, such as task analysis) and when creating a persona (user model profile; Scuotto, Beatrice, Valentinac, Nicotrad, Di Gioia and Briamonte 2020; Stachová, Stacho, Cagánová and Starecek 2020).

Individual employee behaviour acts as a determinant towards the intention and perceived control of the organisational KMS (Garfield 2018; Demir, Budur, Omer, and Heshmati 2021; Nurdin and Yusuf 2020). The authors state that the attitude to organisational KMS assists with understanding whether the attitude of individual employees is favourable or otherwise in relation to its usability. This assists with understanding individual employees' perspectives on how it possibly influences their intention to access online OK on organisational KMS (Sardjono 2020; Lee, Choi, and Lee 2020; Maramba 2020). These authors state further that employees go for goals they can achieve and disregard perceived difficulties. According to Haung (2020), this state of affairs is assumed to aggravate personalisation, retention and codification of knowledge-related activities in telecommunication industries and poor innovation and competitive advantage processes. As a result, this kind of investigation has become essential for avoiding identified conflicts and ensuring that key issues, programmes, activities and practices are addressed during the design and implementation of organisational KMS.

Difficulties in organisational use relate to technological features concerning employees' unrealistic expectations of organisational KMS (Tan 2016; Liang 2020; Ayatollahi and Zeraatkar 2020; Wang and Wang 2020). Ayatollahi and Zeraatkar (2020) point out any mismatch between individual employees' needs in integrated KMS and processes that restrict use or sharing, lack of integration, compatibility between different systems, insufficient training in formalisation or familiarisation with KMS and methods are critical to understanding. Perhaps, organisational KMS implementation must adopt an employee-centred approach for effective and efficient use to induce innovation and performance. As a result, organisational KMS is founded on interactive processes designed specifically to make organisational KMS usable in

terms of objectives, situations, task-oriented organisation, and workflow (Tan 2016; Liang 2020). This study sought to establish personalisation, retention, codification and challenges faced by the organisation in the creation, storage, capture, retrieval and sharing of knowledge using collaborative tools as a significant contribution to understanding the implementation of KMS for KM in MT companies in Namibia (Lee, Choi, and Lee 2020; Haung 2020).

Individual employee-centred implementation principles and undertakings will assist with core principles based on the active involvement of individual employees, appropriate allocation of function systems such as interrelated design solutions and multi-disciplinary design (Sardjono 2020). According to Nurdin and Yusuf (2020) and Friedrich *et al* (2020), these features or elements will focus on necessary core activities, such as understanding and specification of the context of use, specifying employee and organisation requirements, production of more than candidate implementation solutions and evaluating implementation requirements.

Evidence from work by Tan (2016), Archer-Brown and Keitzmann (2018), Centobelli, Cerchione and Esposito (2018), and Garfield (2018) was essential to this study and contributed to an understanding of organisational KMS usability. However, to the researcher's knowledge, its possible relationship to organisational KMS tools and potential roles in MT companies' contexts is remarkably inadequate. Therefore, it is essential to point out that organisational KMS usability details the extent of systems used by individual employees to achieve their goals with effectiveness, efficiency and satisfaction with the specified task (Tan 2016; Garfield 2018).

The effectiveness of organisational KMS should be projected to understand the percentage of goals achieved by individual employees as users, the successful completion of undertakings and the ordinary correctness of completed responsibilities (Chandna, Iusco, Lu, and Lee 2016, 2018; Ghasemi and Valmohammadi 2018). Efficiency entails the time an individual employee takes to meet their duties per unit of time and the monetary cost of performing the responsibility (Zhurba 2019). Satisfaction was related to the rating scale for satisfaction, frequency of discretionary use and the frequency of individual employees' complaints about organisational KMS (Ouriques, Wnuk, Gorschek, and Svensson 2019; Özlen and Handzic 2020). Hence, organisational KMS in MT companies focuses on individual employees' satisfaction by

empowering and taking control (Tsai and Hung 2016; Özlen and Handzic 2020). The proposition by the researcher was that the field of organisational KMS, particularly in MT companies in Namibia, is obliged to illustrate its usefulness in inducing innovation for competitive advantage for the socio-economic development of Namibia. This study attempts to bring to light the current situation in this field of study.

### **3.8.2 Knowledge Management Systems Enablers**

Critical enabling factors for successful organisational KMS implementation hinge on individual employee involvement, senior management, measurement, open organisational culture and commitment, teamwork and systems infrastructure (Wang and Wang 2016; Li, Liu, and Liu 2016; Nengomasha, Mubuyaeta and Beukes-Amiss 2017). Organisational KMS enablers are designed to cultivate the management of OK to encourage processes of sharing, creation, dissemination, capturing and acquisition of OK to facilitate KM practice within MT companies (De Souza, Salgado, Marins, and Muniz 2020; Dweiri and Shatat 2021; Ciampi, Marzi, Demi, and Faraoni 2020). Elahi (2020:196) classified variables into the following four broad categories with reference to organisational KMS enablers and barriers: methodology, technology, human capital and organisation. With reference to the broad categories above, it was suggested that organisational culture is critical and impacts the success of KM implementation by fostering knowledge-sharing. In addition, motivation and employee's education were critical and fell under the human-capital category. This perspective featured in relation to organisational support and workers' adaptation to KM approaches. This study, therefore, looked at organisational structure and employee mobility within MT companies have a role in the most effective application of organisational KMS. This was in reference to the reviewed studies above that highlighted that top management motivation and their ability to persuade employees to share expertise to implement KM processes are crucial. The support from management enables the objective of implementing KM methods in industries to be accomplished in a short period. Furthermore, the author recommends that culture and strategy formulation work as enablers for rapid and successful organisational KMS for KM practice. Along with these elements, uncertainty, the state of law and order and protective legislation all have a role to play when it comes to organisational KMS for KM.

Individual employees were perceived as important users of the implemented systems from their perspective, and their success determines the realisation of the MT



companies' undertaking and its environment. The importance of an individual employee in enabling the success of organisational KMS seems to require contextual understanding by looking at attributes to understand the influence of employees (De Souza *et al* 2020; Ciampi *et al* 2020; Dweiri and Shatat 2021; Hashim and Sultan 2009; Wang and Wang 2016; Li, Liu and Liu 2016). MT companies should consider individual employees' attitudes and anticipation of organisational KMS implementation as enablers from this perspective. This is so as successful organisational KMS depends on how helpful OK is in fulfilling individual employees' expectations (Islam and Agarwal 2019; Pellegrini, Ciampi, Marzi and Orlando 2020).

To overcome obstacles and fulfil the demand for good organisational KMS, MT companies must be aware of the ways that enable effective organisational KMS for KM practice (Okere 2017). This study looked at what factors hinder organisational KMS processes in MT companies in Namibia. The researcher's premise was that every organisation is distinctive in the problems encountered with reference to organisational KMS. There can never be a blueprint for organisational KMS implementation because cultures differ (Du Plessis 2008:287; Sayyadi 2020).

Wang and Wang (2016), Li, Liu and Liu (2016), Döring and Witt (2019), and Tsetim, Adegbe and Agema (2020) believe that organisational KMS barriers relating to individual employees are responsible for making organisations fail. These authors state that this concerns the reluctance to pursue contributions and learn from others, and incapacity to search for and find OK, reluctance to seek assistance, failure to work collectively and transmit OK into systems. Okere (2017) states that the absence of web-based access may impede users' ability to obtain knowledge from any location. A web-based content management system could perhaps enable users to capture, store, change, distribute, retrieve, preserve and collaborate with data from any location and at any time.

In addition, obstacles relating to individual employees could affect MT companies in three separate ways: unwillingness to seek feedback and learn from another employee, lack of ability to seek and find knowledge (both individual and organisational), and a reluctance to assist and failure to work together and transfer OK (Döring and Witt 2019; Yeşil and Hırlakt 2019; Tsetim, Adegbe, and Agema 2020). Employee barriers such as language (diverse workforce using different languages),

fear of penalty, fear of losing one's profile and fostering established communication channels (Jianfeng, Latif, Shafait and Sahibzada 2020). This study aimed to recognise these efforts in place for organisational KMS in MT companies in Namibia. Organisational KM is understood to be a collaborative activity with processes that leverage OK or human intelligence to stimulate creativity. Still, many organisations tend to be unaware of their challenges (Tomo, Mangia and Consiglio 2020).

Yeşil and Hırlakt (2019) and Karagoz, Whiteside and Korthaus (2020) propose that the successful management of OK in an organisation using organisational KMS is based on elements such as the importance and value of the OK source (Elahi 2020). The desire and willingness of the individual employee as the bank of tacit OK (readiness to share tacit OK), actuality and fruitfulness of diffusion networks (quality of KMS communication networks, motivational disposition of the target unit (individual employee willingness to reflect on the importance of external OK are necessities (Sumbal, Tsui, Durst, Shujahat, Irfan and Ali 2020). Yeşil and Hırlakt (2019) and Halisah, Jayasingam, Ramayah and Popa (2021) explain that an individual employee's capability of taking cognisance of the importance of the new OK in incorporating it into the existing storage of OK and being able to use it to the benefit of the organisation for competitive advantage is vital as a determining factor.

In this study, senior management was seen as an essential driver of organisational change in organisations with organisational KMS. According to Eletter, Refae and Kaba (2020), employees look up to them to understand the prominence and benefits of KMS. Gou, Li, Lyu, Lyu, and Zhang (2018) and Halisah, Jayasingam, Ramayah, and Popa (2021) suggest that transformational and transactional management relates positively to organisational KMS implementation. Their study shows that charismatic management and responsible reward management conduct significantly affect the magnitude of organisational KMS implementation. A simple understanding that this study contributes to is that organisational KMS will not function to the fullest unless senior management fully supports it as a role model (Alstete and Meyer 2019). De Koker and Du Plessis (2020) suggest that senior management generates and cultivates the atmosphere that confirms issues of KMS, such as sharing, capture, dissemination, transfer and acquisition of OK as important components at the centre of systems in MT companies. As a result, the study set to investigate these initiatives involving organisational KMS implementation in selected Namibian MT companies.

Cheng (2020) suggests that it is essential to note the importance of senior management, ICT, culture and the environment as hindrances influencing the operation of KMS within an organisation to certify a successful organisational KMS implementation. These help determine the success of implementing organisational KMS in MT companies (Veeravalli, Venkatraman and Hariharan 2019). Information and communication systems are enablers of KMS because they are responsible for a cost-and time-efficient technique of shifting structural routines via technology (Tsetim, Adegbe and Agema 2020). ICT assists with the process of OK generation, creation, acquisition of knowledge, validation, codification, personalisation, analysis, mining and transference, sharing and dissemination (Karagoz, Whiteside and Korthaus 2020).

Consequently, ICT preoccupied with organisational KMS essentially commands codification of OK to create tacit to explicit OK via records, documentation and online technical manuals, handbooks and references (Karagoz, Whiteside and Korthaus 2020; Pinterič 2020). ICT also supports and organises the movement of organised OK by the storage and retrieval of information. Although ICT enables KMS processes, Pinterič (2020) and Al-Busaidi and Al-Muharrami (2020) state that it assists individual employees to remain connected and to have access to the database and warehouse repositories to access information. However, it has turned out that ICT is not the solution to problems in the organisation (Sayyadi 2020). The study's emphasis was positioned on the essentials of the individual employee for a successful KMS implementation in selected MT companies in Namibia.

An equally important element to those mentioned above that enables organisational KMS is organisational culture. This concept constitutes the belief that interpersonal OK transfer, collaboration and sharing within MT companies were significant for this study (Veeravalli, Venkatraman and Hariharan 2019; Sayyadi 2020). These authors state that organisational culture exhibits itself in an organisation in various formats, such as sub-cultures and differences, which imply the usage of KMS. This brings us to the understanding that organisational culture is a significant element in KMS implementation. Reference is made to a considerable challenge to KMS, in particular, KM practice (Jasimuddin and Zhang 2014; Pinterič 2020). As a result of this research, the organisations of MT companies may be determined by values, beliefs and work systems that foster and motivate or act as barriers to OK, identification, sharing, creation, transfer, access and retrieval.

On the other hand, environmental and organisational KMS barriers arise due to the working environment (Ramjeawon and Rowley 2020). Employee personal networks and informal collaboration and interaction between OK workers are a strong foundation for OK creation and dissemination via KMS (Ramjeawon and Rowley 2020; Elahi 2020; Agrawal and Mukti 2020). This understanding shows that ICT implementation is essential for effective organisational KMS usage for KM practices. However, in MT companies, emphasis should be placed on the needs of the individual employee and the type of organisation in general.

This study explored MT companies and the characteristics that facilitate organisational culture, considering the importance of organisational KMS implementation based on senior-management support, reward, sharing and championing employee and departmental collaboration for the formation, conversion and sharing of OK on organisational KMS (Agrawal and Mukti 2020; Ramjeawon and Rowley 2020). The development of this thesis is that the organisational KMS stresses that OK ought to be identified, captured, re-created, classified and shared. Such developments rest on information technology, and organisations should consider these issues during the implementation phase and consider individual employees' acceptable organisational culture and structure.

Ramjeawon and Rowley (2020) and Agrawal and Mukti (2020) suggest that organisational culture comprises two types, visible and invisible individualities. The invisible refers to collective or mutual principles, standards, convictions and expectations of organisational employees. These sway how individual employees act in the organisation and severely affect organisational KMS implementation (Ramjeawon and Rowley 2020). Arguably, culture can strain employee performance, and the hoarding of OK in the organisation can give birth to inadequate employee collaboration. A lack of senior-management contribution creates introverted OK sharing and retention (Eletter, Refae and Kaba 2020). Hence, its effect on using organisational KMS to induce innovation and improve employee performance could find the middle ground (Sumbal, Tsui, Durst, Shujahat, Irfan and Ali 2020). These constructs assisted in understanding the user-friendliness of the organisational KMS implemented in MT companies in Namibia.

Eletter, Refae and Kaba (2020) suggest that it is significant that senior managers pledge and commit to act as role models to cultivate a positive organisational culture for implementing KMS. Sumbal *et al* (2020) support this understanding by suggesting

that employees who are enthusiastic about overcoming these obstacles are understood to be successful in line with a rigid culture, hierarchies, outdated processes, techniques and the absence of considerate measures. Thus, organisational KMS should be built on a collective process. Ramjeawon and Rowley (2020) conclude that the organisation must cultivate a new, innovative and OK-friendly culture. Senior management is obliged to pledge to drive KMS consistently.

The organisational structure represents another element that facilitates the implementation of organisational KMS infrastructure for KM practices. Kiros, Mamo and Tesema (2018) state that the organisational structure ought to act as an element directed to overcoming obstructions to issues that limit organisational learning by KMS. In this study, the structure served as a determinant for employees or groups of employees to engage in KM practices using KMS to share experiences in informal settings (online story discussion) or formal undertakings such as conferences, consultations and symposia.

Kiros, Mamo and Tesema (2018) observed that the lack of a structure that champions organisational KMS discourages organisational KM undertakings, as it hinders the effective implementation of KMS. Therefore, organisations should engage in mechanisms such as decentralising structures to eliminate layers that act as obstacles to KM practices by introducing collective responsibility to employees by fostering the group's size and reporting to each employee (Halisah, Jayasingam, Ramayah and Popa 2021).

Therefore, the delivery of an organisation depends on the application of organisational KMS championed by senior management with strong interpersonal communication and change-management skills, an understanding of the business, technological expertise and the ability to build relationships for KMS and benefits of the organisation (Kiros, Mamo and Tesema 2018; Halisah, Jayasingam, Ramayah and Popa 2021). The successful implementation and use of KMS by MT companies are dependent on the company's KM strategy objectives, which rely on management as a champion, individual employees and technology; it must incorporate OK assets into KMS.

As a result, the theory here was that the organisational KMS implementation processes should be viewed through a collective process lens based on individual employee perception. This development embraces concepts such as storage, capture, search and retrieval. It drives sensitive information to individual employees and

groups, shares and collaborates, produces profiles and personalises, solves or recommends, integrates and maintains (Ramjeawon and Rowley 2020; Halisah, Jayasingam, Ramayah and Popa 2021). KM policies, strategy, infrastructure, understanding of individual employee use and perception are highlighted. Therefore, it was essential to explore organisational KMS for KM in MT companies in Namibia from this perspective in this study.

Due to the emerging interest in organisational KMS for KM, this study attempted to investigate the application of organisational KMS in MT companies at the level of infrastructure, strategies implemented, understanding the support of senior managers, measuring employees' perception of the usability of KMS and establishing KMS enablers. These principles are viewed as a significant feature of the organisational KMS for KM in an organisation.

The above understanding was based on a KM that assists in authenticating cultural standards for organisational KM enterprises. On the condition that, in understanding some essential principles, there is a lack of frameworks and exploration explaining how precise forms of cultural standards influence KMS implementation and consequent conclusions (Tounkara 2019:1; Ramjeawon and Rowley 2020). As a result, the increase in organisational KMS challenges presented above has reignited interest among KM researchers and scholars and KM senior managers in how effective and efficient implementation and use of KMS can improve KM processes. Organisations find it difficult to implement and use KMS, and timely utilisation of OK turns out to be a challenge (Sumbal, Tsui, Durst, Shujahat, Irfan and Ali 2020). According to these authors, organisations may struggle with the successful implementation of KM initiatives, as well as the challenges of operating in a technologically competitive environment that compromises their service standards while lacking a competitive edge. Arguably, organisational KMS exploits an amalgamation of various infrastructure, instruments and technologies for organisational KM practices. It was important for this study to explore the issues supposed to thwart organisational KMS operations for KM practice in MT companies in Namibia. Thus, driven by the realisation that KMS implementation was required for a successful KM initiative. Challenges that hinder its effective and efficient implementation in an organisation were worth exploring. This study turned out to be important and well-timed.

The literature on enablers and barriers to the adoption of organisational KMS strategies for KM identified a number of essential aspects and concerns that must be addressed to enhance MT companies' competitive advantage and bring it into line with other productive sectors, as suggested by Elahi (2020). It is also crucial to note that there are limited scientific studies in KM, let alone KMS, which could assist with applying and leveraging knowledge in MT companies in Namibia. Furthermore, the concept is still evolving, so this research has become critical. The study investigated KM strategy, leadership, KMS infrastructure, culture, structure, individual employees, barriers and their role in organisational KMS implementation in MT companies in Namibia. The underlying thesis was to deliver the foundation for developing, recommending an implementing framework that may well be applicable for implementing organisational KMS in MT companies in Namibia.

### **3.9 Summary Of The Chapter**

This chapter discussed the conceptual framework and relevant literature dealing with the current understanding of organisational KMS. The chapter proceeded by exploring mechanisms that influence organisational KMS, such as KM strategies and KMS infrastructure. Concepts such as the codification and personalisation of KM strategy with technology, organisation, environment and SECI related to OK identification, creation, capture, storage, sharing and classification using KMS for KM were also discussed. The existing literature discussed how KMS should consider individual employees, organisational network system ties, shared values and trust for OK in databases and repositories. It was suggested that a considerable understanding of organisational KMS on an individual's perceived consultation and competence based on their intention to contribute to the growth of OK using KMS is needed. The ever-growing empirical KMS studies offer a foundation of organisational decision-making that nurtures the effectiveness of KMS. Existing literature highlights organisational KM technology, the role of KMS, organisational culture, structure, process and individual employee factors in enabling organisational KM. From this standpoint, exploring KMS was deemed to identify determinants considered to hinder or limit the implementation of KMS. The next chapter presents the methodology of the study.

## CHAPTER FOUR: RESEARCH METHODOLOGY AND DESIGN

### 4.1 Introduction

The preceding chapter defined the phenomena under investigation by establishing a conceptual framework that guided a review of relevant literature on organisational KMS implementation in selected MT companies in Namibia. The discourse addressed conceptualisations such as technology, organisation, and environment (TOE) and socialisation, externalisation, combination and internalisation (SECI) models to aid with comprehension.

This chapter discusses the methodology used to explore organisational KMS implementation in selected MT companies in Namibia. The chapter discusses the philosophical postulations that influenced the choice of study methods (issues of ontology and epistemology) and research design. Philosophical presuppositions are regarded as crucial in the development of study methodology and research design. In light of that, Neuman (2011:2) and Harrison, Reilly and Creswell (2020) argue that methodology is founded on the principle of comprehending the research process and involves a philosophical assumption that influences the selection of methods when undertaking a research project. Methodology assisted with oversight of the outlined research problem, procedural implementation, data collection and analysis.

In the present study, the methodology hinged on three elements: the standpoint, conceptual framework and methods linked to research practice. This framework gave the study a stance and principles to underpin the thoughts, views and position (Walter and Andersen 2013:43). This attested to the scientific rigour and effectiveness of the analysis in establishing the study's credibility, applicability, continuity, impartiality, nature and validity (Harrison *et al* 2020). This study adopted a mixed-methods approach. Mixed methods research was used to gain an advantage from different methods (qualitative and quantitative) in an inter-connected and corresponding manner. As a result, the study used a variety of data collection tools and analysis to gain a better understanding of organisational KMS implementation in selected Namibian MT companies. This approach was seen as a theoretical lens through which the research might be comprehended, developed and performed (Walters and Anderson 2013:42). To demonstrate statistical configuration, a quantitative approach was used. The qualitative approach was used to determine the user's word-perfect perspective on organisational KMS implementation in selected MT companies in



Namibia. The chapter concludes with a discussion of ethical issues, a methodology evaluation and a summary.

## **4.2 Research Paradigm**

In this study, philosophical assumptions served as the basis for this research and explain its major characteristics. According to Sarantakos (2013), a paradigm is a cosmology or worldview that determines the researcher's confidence and assumptions. Mavodza (2019) states that the paradigm benefits the researcher by altering conceptions and beliefs. In light of that it defines the study plan and directs the appropriate way to unravel the research topic using quantitative, qualitative or hybrid (mixed methods) approaches. According to Saliya (2017), paradigms serve a variety of purposes, from acquiring information to developing/constructing concepts in order to give solutions. In that light, Creswell (2014), Shannon-Baker (2016) and Coates (2020) observe that the researcher must classify the philosophical ideas that underlie their work throughout the research process. In light of that, research paradigms played a big part in figuring out the research strategy to answer the research question and reach the study's objective.

Ngulube (2019:89) emphasises the need to see paradigms as analytical lenses that are deeply embedded in the metaphysical presuppositions of the research system or substructure in order to provide context for the thesis and inspire the researcher to investigate the phenomena. It is from this perspective that Molina-Azorin and Fetters (2020:6) highlight the importance of employing MM research methodologies and their associated paradigms in order to overcome the incompatibility of propositions, reflection measures and the exploitation of different paradigms in a dialectical multiplicity or pluralism. These worldviews influenced this MM study on the implementation of organisational KMS to selected MT companies in Namibia.

The pragmatism paradigm served as the foundation of the research methodology for this study as proposed by Creswell (2014), Shannon-Baker (2016); Ngulube (2019). Thus, in this study, it was assumed that paradigms are not immutable or rigid objects that constrain the direction of an investigation. In this study, however, paradigms contributed to the formulation of the study's technique by focusing on the phenomena (organisational KMS in selected MT companies), exploring and proposing

ways to handle the issue, given certain worldviews (Shannon-Baker 2016; Walton, Plano, Clark, Foote and Johnson 2019).

Paradigms such as positivism, post-positivism, interpretivism, transformative and pragmatist influence a research project in their right. These worldviews are represented in two parts, objectivism (positivism) and subjectivism (interpretivism) (Ghiara 2020, Christensen 2020, and Coates 2020). Subjectivism uses nominalist ontology, which notes that OK is collectively created by individual workers of MT companies interacting using organisational KMS to build OK based on each other's experiences of the environment. Realist ontology, on the other hand, is at the heart of Objectivism. For example, reality is independent of an individual employee's perception, and epistemologically, reality is structured as fixed prior concepts and categories (Schultze 1998). In this study, paradigms are debated in relation to ontology, epistemology and methodology in relation to organisational KMS. The core differences in subjectivism and objectivism were considered in their differential suppositions in this research project. For example, according to Saliya (2017), positivism's epistemological stance is that truth may be acquired regardless of the investigator. The author proceeded to state that positivism holds that investigation ought to be neutral and value-free, which implies that the investigator's emotions or beliefs should have had no effect on the study findings. Positivists utilise the concepts of impartiality, reliability, validity and universal applicability in their lexicon, while non-positivists, who often guide qualitative research, would use concepts such as trustworthiness, transferability, dependability and conformability (Guba and Lincoln 2005, Saliya, 2017).

Guba and Lincoln (2005) offer a participative paradigm as an alternative. It was, however, not referred to as a paradigm in this research. It was recognised as a technique employed in the aforementioned paradigms that are guided by the philosophies of any academic (Mertens 2014:56). Ngulube (2015:127), speaking especially about the argument over philosophical presuppositions, asserts that these philosophical presuppositions establish research standards in a particular subject field.

As a result, it was deemed critical to base this investigation on the pragmatist paradigm as directed by Creswell (2014); Shannon-Baker (2016); Walton *et al* (2019); Creswell

and Creswell (2018); Coates (2020) and Ngulube (2020b). The idea was that the pragmatic paradigm adequately describes a study that is based on the status quo, actions and consequences rather than predecessor circumstances post-positivism (Creswell and Creswell 2018:48). According to Coates (2020), a good foundation should result in a more accurate conceptualisation of the phenomena being studied. This was in relation to the integration of epistemology, ontology and techniques within the study, and the execution of the selected research methodology. This view was consistent with the study's philosophical viewpoints. In light of that, Tashakkori and Teddlie (2010), opines that pragmatism is one of the paradigms that provides a basic logical background for mixed methods research by concentrating on the phenomenon's study questions (Merterns 2014:85, Creswell and Creswell 2018, Walton *et al*/ Johnson 2019).

Therefore, with that understanding above, according to Shannon-Baker (2016), Creswell and Plano Clark (2018), MM studies, when well implemented, illuminate their study by bringing a perspective, basically gathered with conviction and confidence about the nature of reality. The researchers used the pragmatic paradigm because MM study researchers advocate the use of the MM technique when conducting an MM study (Merterns 2014:56), and most apt to understand or explore organisational KMS implementation in selected MT companies in Namibia. Although absolute unity was discarded, the original objective of using qualitative and quantitative research methodologies, as well as the truth that they operated on varied types of the data acquired and analysed, were maintained (Creswell and Creswell 2018). This was accomplished via a method that balances the benefits and drawbacks inherent from each standpoint (Okesina 2020).

It was important to note that what has been discussed above emphasises how science's philosophy and history of protuberance have been dominated by the continuing discussion dubbed the paradigm wars. According to Ngulube (2019:430), the MM enquiry was developed during or after the paradigm wars and depended on the conventions that realism and constructivism existed differently and dissented when addressing research enquiries. Teddlie and Tashakkori (2009), Ghiara (2019), Coates (2020) and Christensen (2020) acknowledge the importance of the paradigm wars and state castoff issues are connected with them, which supports the idea that a research

project ought to use a MM approach. They acknowledge the importance of the researcher's principles in reaching conclusions.

The researcher acknowledged that multiple research paradigms result in a worldview underpinning the methodological field, a mixed-methods worldview (Ghiara 2019; Christensen 2020, Molina-Azorin and Feters 2020). Thus, in light of the paradigm suggestion (high and dry on multi-paradigm), this research was guided by both positivist and interpretivist perspectives, as directed by Ngulube (2015) and Shannon-Baker (2016). This was done to maintain a healthy mix of subjectivity and objectivity across the investigation (Okesina 2020).

Philosophical assumptions served as a bridge between positivism, constructivism, realism, pragmatism and postmodernism. This is so by encapsulating widely disparate views on reality (ontology) and how the researcher should acquire knowledge (Christensen 2020; Coates 2020). This understanding was referred to in relation to the deployment of organisational KMS at selected MT companies in Namibia. The researcher's worldview was pragmatic, and issues of ontology and epistemology affected his perception of the qualities of social reality (individual employee analysis of the organisational application of KMS) by creating two sets of qualitative and quantitative data. The logical empiric conclusions interconnected with reality (subjectivism and objectivism) were sought in order to comprehend the organisational KMS implementation for KM in selected MT companies in Namibia. As a result, as explained in the next sections (4.2.1. and 4.2.2.), ontology and epistemology are the researcher's hypotheses aimed at summarising the individual employee's pragmatic perspective on the organisational KMS implementation in selected MT companies. The idea was that, pending further investigation and analysis, OK in MT organisations should be viewed as contextual for individual workers.

As mentioned before, after accepting the above-mentioned assumptions, the researcher embraced objectivism and acknowledged that social reality existed independently of individual employees. Employee subjectivism reshapes reality in MT companies (Ngulube 2020a; Coates 2020). This study explored the organisational KMS strategy, senior management support and individual workers' opinions regarding organisational KMS implementation in their natural environments. These are critical to the philosophical and abstract considerations of this mixed-methods inquiry as

directed by Christensen (2020) and Coates (2020). This aided in the establishment of an appropriate epistemological account that placed a premium on experience and comprehension in connection to organisational KMS. On the other hand, ontology was crucial in building methodological comprehension. The researcher understood how important the pragmatic paradigm was to the success of this study. It served as a collection of structured theoretical configurations and expectations in light of the ontology, epistemology and methodology for the understanding of the organisational KMS implementation in selected MT companies in Namibia.

#### **4.2.1 Ontology**

Ontology is the study of reality or actuality (Sarantakos 2013; Molina-Azorin and Feters 2020). Ngulube (2015:127) points out that ontological assumptions describe the epistemology of knowledge produced by the interpretive paradigm (subjective), and epistemologically positivists create objective facts that are 'obtainable'. For this study, the ontological perspective of the researcher included the skills, capability and actions of the individual worker or group towards organisational KMS implementation and whether such issues are supposed to be factual and preceding conveniences (Coates 2020). Therefore, this created knowledge about the individual objective, subjective, neutral or reflective of reality, realising the sharing, transfer and protection of OK via KMS for KM (Schultze and Cox 1998; Christensen 2020; Coates 2020).

The researcher connected the understanding of a paradigm to inform the methodology as suggested by Mertens (2014:85), Ngulube (2015); Molina-Azorin and Feters (2020). This approach influenced how the researcher investigated organisational KMS implementation in selected MT companies in Namibia. This was a consideration that the study hinged on the MM approach which subscribes to pragmatism. Pragmatism and pluralism are known to bridge the distance between interpretive and positivist views (Ngulube 2015; Molina-Azorin and Feters 2020). In that light, this study used a mixed-method approach to explain organisational KMS in MT companies. Pragmatism was a deconstructive paradigm that throws light on conceptions such as truth and reality and is emphasised as an alternative to what works as the truth on the subject of the study questions explored (Creswell and Creswell 2018; Molina-Azorin and Feters 2020). In this study, positivism or objectivism was associated with a quantitative approach. Ontologically, this understanding leans towards empiricism as a possible ground for justifying the belief that leads to an objective reality or conclusion,

that is, testing hypotheses and experiments (Creswell and Plano Clark 2018). Positivists argue that reality is made up of what is obtainable or accessible (Molina-Azorin and Fetters 2020). At the ontological level, positivists accept realism (naive realism) or single truth, which means that reality is objective, quantitative, and observable through the protocols that are independent of the investigator and his or her tools (Okesina 2020:60).

This study was focused on objective observation (as opposed to the theory of speculation) and observational evidence. It was based on measurable results, makes proposals based on facts, establishes a causal relationship, describes events, is clear and relates to the scientific commandment (Robson and McCartan 2016; Emery and Anderman 2020). It is, therefore, the process or principle used to understand organisational KMS by collecting and interpreting data to reach a reasonable scientific conclusion. Efficiency ought to be observed concerning instituting that the findings work using a reference to the problem that the study pursued to resolve (Mertens 2014; Robson and McCartan 2016; Emery and Anderman 2020).

Anti-positivism was critiqued from the viewpoint of positivism. It was recognised that natural science, ontology and epistemology could not be extended to the comprehension of human beings (employees) as empirical rules applied or as objects to rule, to foresee social activity and its action. The researchers implemented methods different from natural science. Arguably, individual employees in MT companies were assumed to create or make the world alive and construct meaning (values, culture and interaction) in relation to organisational KMS.

As a result, the purpose of this study was to provide principles and interactions for the organisational implementation of KMS in the eyes of individual employees, as well as to determine what is important to them based on their understanding of their behavior regarding KMS for KM practice. It was based on a relative ontology. Interpretivism postulates that human action is expressive and, as a result, denotes the comprehension of certainty (Mhlongo 2018:78). In this study, the understanding was associated with interpretivism to explain and interpret organisational KMS, placing individual employees' experience in their organisational social context considering their subjective world. The standpoint was that organisational KMS for KM in selected MT companies is grounded on multiple realities. In other words, all knowledge is

contextual and may be interpreted via the lens of the person actively threatened or involved (Okesina 2020).

Max Weber (1864-1920) developed three approaches to understand social action that influenced this study, leading to the understanding of what could motivate employees' actions (original meaning developing products or services for MT companies, rational value action based on belief, procedures or policies), traditional actions and effectual action (employee emotions). This paradigm asserts that senior management and their subordinates in MT companies are likely to be favoured and frequently acknowledged when creating reality, and that belief in this paradigm ultimately prevailed (Mhlongo 2018:78). Using the SECI paradigm, the interpretivist (researcher) employed a qualitative technique in this study to comprehend and interpret social reality in relation to organisational KMS implementation.

#### **4.2.2 Epistemology**

Epistemology is about efforts to postulate what legitimises knowledge to determine real from false or distorted knowledge (Stoecker and Avila 2020). Referring to organisational KMS in selected MT companies in Namibia, the understanding was that individual employees advance OK applicable to their setting (Roos 2017). The author states that subsequent OK is inherent in the networks of specialists (experts) and is a problem-solution position. The level of OK in MT companies, according to Roos (2017), is determined by the state of the system (which corresponds to the need for collaboration and co-creation), and autopoiesis OK exists in a comprehensive system of mind, body and social system, where knowledge is private.

From the above perspective, Howes (2017) and Christensen (2020) propose that epistemology is grounded on the proposition of what constitutes valid scientific knowledge and how passable and reasonable it is. Epistemology subscribes to positivism, interpretivism and pragmatism (Wahyuni, 2012; Ngulube, 2015). These paradigms influenced this study's methodology, grounded in pragmatism alongside the MM research approach to explore organisational KMS implementation in selected MT companies in Namibia. On an epistemological level, positivists believe that the knower and the object to be known are distinct entities, which neither imposes effect above the other and that their divergence enables absolute meaning (Okesina 2020).

In this study, however, epistemology was primarily subjective, included both the investigator and the subject throughout the procedure of exploring organisational KMS implementation in selected MT companies in Namibia. The understanding was that realism seems to be also affected by its environment. In this study, therefore, interpretivist paradigm, the investigator acknowledged the study's value-laden character and openly discloses his or her views and predispositions, as well as the worth of field data (Okesina 2020).

Ngulube (2015; 2019) and Christensen (2020) point out that pragmatism or methodological pluralism equate to the MM approach. The study's paradigm was grounded in giving this study a perspective of positivism, post-positivism and interpretivism to understand organisational KMS implementation in MT companies in Namibia. The researcher's understanding was that epistemological paradigms are organisational KMS that draw together organisational structure, environment and interpersonal configurations. In this study, the understanding comes through organisational KMS strategy, senior management support, infrastructure, employees' attitudes and establishing its enabler for effective and efficient KM practice in MT companies in Namibia. Important to investigate are individual and group epistemologies focusing on autopoiesis, connectionism, or cognitivism, which influence the impact of socio-technical operation and integration within the organisation as well as the degree of technological variation (Roos 2017; Stoecker and Avila 2020).

As a result, it was critical to note that the pragmatic stance in this study distinguishes the MM research methodology from traditional quantitative and qualitative procedures (Ngulube 2019:430). Organisational KMS for KM practice took place on the understanding that methodological approaches hinge on the technological and social lens to the interrelationship which co-exists among constructs in organisational KM projected on socio-technical systems. Individual employees and technological, organisational epistemologies are influenced by the reasoning standpoint in organisational KM (Jelavic 2011; Roos 2017). These authors state that these interrelationships permit KM researchers and organisations to understand that effective organisational KMS hinges on individual employee usage.



In this study, MT companies were perceived as systems of OK that take cognisance of individual employee interpretation, communication and abilities, expertise and skills in producing organisational accomplishment (Roos 2017). Hence, understanding the above assisted the researcher to explore how individual employees use organisational KMS strategies, senior management support and infrastructure and interconnect with each other in the environment of MT companies' systems of coordination, established beliefs and perceptive representations to carry out organisational undertakings (Roos 2017). Pragmatism is the epistemology embraced in this study that must be coherent with the ontological position that the study implemented (Section 4.2.1). In that light, the study was grounded on balancing issues of subjectivity and objectivity as proposed by Okesina (2020). The following section discusses the research approach to the phenomenon under study.

### **4.3 Research Approach**

An interdisciplinary field such as organisational KM via KMS appears to be influenced by research in three ways; qualitative, quantitative and MM. Creswell (2014), Mertens (2014), Creswell and Creswell (2018) and Ngulube (2019) suggest that research projects are based on qualitative, quantitative or MM approaches. The quantitative, qualitative, and mixed methods approaches are different in data collection and analysis processes to reach reasonable empirical conclusions. This depends on the philosophical assumptions that influence each approach.

The researcher adopted the MM approach to explore organisational KMS implementation in selected MT companies in Namibia. The mixed methods approach seeks to improve and strengthen issues of validity and credibility of research (Shannon-Baker 2016). For instance, combining interviews, questionnaires and document analysis gave depth to the reasonable conclusions that would not be feasible with a single technique alone, thus improving the conclusions' validity and reliability (Okesina 2020) of this MM study. Applying the MM approach's ontological and epistemological presuppositions acted as the differential application in this study (Ngulube 2015; Christensen 2020). The study used the MM approach to collect and analyse data to draw reasonable empirical conclusions on organisational KMS implementation in MT companies in Namibia from a pragmatic point. The MM approach consisted of a detailed plan and procedure for how this study was conducted, showing the actions of data collection, scrutiny and analysis (Creswell

2014; Mertens 2014; Creswell and Creswell 2018), described in Sections 4.3.1 to 4.11 of this chapter. In accordance with this understanding, the researcher was required to approach and interpret organisational KMS implementation in Namibian MT companies influenced by objectivist and subjectivist stances, resulting in a pragmatist approach to the most reasonable empirical conclusion (Ngulube 2019; Harrison *et al* 2020). The study was influenced and considered central to ontological and epistemological underpinnings, pragmatism (objectivism and interpretivism) and constructivism, which kept track of organisational KMS implementation in MT companies in Namibia.

The classification concerning qualitative, quantitative and MM research (Table 3) is distinctively varied in its process (Cohen, Manion and Morrison 2019; Creswell 2018; Ngulube 2019). The qualitative approach looked at developing and exploring an understanding of employee behaviour and experience, especially looking at expanding the multiple and diverse characteristics attributed to employee interpretation and the tell-tale of meaning and constructivism (see Table 3). Hammersley (2012:12) claims that a qualitative approach configures social exploration and assumes adopting a flexible and data-driven research design, relatively unstructured data to study a small number of naturally occurring cases in detail and using verbal rather than statistical forms of analysis. Qualitative research underscores the importance of producing and expanding descriptions and explanations for testing the predefined theory (Aspers and Corte 2019; Leydesdorff, Ràfols and Milojevic 2020). Reflection is used to note undertakings and draw up definitive explanations from natural language to understand what is under observation or investigation.

**Table 3: Comparison of qualitative and quantitative methods(Source: Hesse-Biber, Rodriguez, and Frost 2015:4)**

	Subjective ←	→ Objective
	Qualitatively Focussed	Quantitatively Focussed
<b>Ontology</b>	Social reality is multiple	There is a concrete social world "out
<b>Epistemology: What can we know and who can know?</b>	Goal is to understand multiple subjectivities. Individuals are the "experts." Through inter subjectivity we understand human behaviours. There is no definitive subject-object split in knowledge-building.	Goal is to ascertain "the truth" in order to predict and even uncover "laws" of human behaviour through objective social inquiry. Scientists are the experts.
<b>Types of questions</b>	The purpose of this research is to understand (the what, how, and why)	Statement of relationship between independent and dependent variable. Question phrased in terms of a hypothesis.
<b>Type of data collected</b>	Naturalistic settings: Participant observation (fieldwork) In-depth interviews, Focus groups Unobtrusive data: ocuments	Surveys, Experiments: Randomized controlled trials Systematic reviews/meta-analyses
<b>Type of analysis</b>	Inductive: Goal is to generate theory. Looks for general themes/patterns in the data. Uses "thick description." Compares and contrasts thematic data. Specific types of analyses examples: Grounded theory, narrative analysis	Deductive: Test out hypothesis. Explain variation in the independent variables by controlling the dependent variables. Stress is on statistical measurement
<b>Goal</b>	Understand a "process."	Generalize, predict, and control research outcomes.

A quantitative approach constitutes a method of research involving experiments and surveys during data collection and analysis (pre-determined instruments). This is so to produce statistical, empirical conclusions characterised by the presupposed conclusion (Creswell 2014; Aspers and Corte 2019; Leydesdorff, Ràfols and Milojevic 2020; Cohen, Manion and Morrison 2018).

In sum, a quantitative method is deductive, motivated by the features of hypothesis testing, statistical data, objectivity, generalisation of results, the discovery of a systematic pattern of connection and variable isolation and control (Cohen, Manion and Morrison 2018:9). Creswell (2014) and Sarantakos (2013) bolster this argument by claiming that qualitative methods are deductively founded and rigorously test theories adhering to strict research designs using statistical analysis measurements. The following section discusses the mixed-method approach that guided this study.

### 4.3.1 Mixed Methods Approach

This study was grounded in MM exploration. A MM study hinges on a framework that consists of the definition, design and rationale of using the MM research approach for methodological rigour (Ivankova and Plano Clark 2018; Plano Clark 2019; Harrison *et al* 2020). Creswell (2014), Mertens (2014) and Molina-Azorin and Fetters (2020) and Okesina (2020) postulate that a MM study is a type of research that involves the combination of elements of qualitative and quantitative approaches in a single study. According to Hashemi and Babaii (2013:830), the use of MM research is based on a synthesis of nomothetic and idiographic methods that aid in twofold commitments in terms of generality and in-depth indulgence. From this understanding, MM research ought to hinge on a defined and established set of standards to measure its quality to advance exploration insight (Molina-Azorin and Fetters 2020; Harrison *et al* 2020). Harrison *et al* (2020) emphasise and focus on its rigour based on rigorous reporting on MM's practice, direction and authority objectively and clearly. These definitions were employed to effectively ensure a comprehensive understanding of organisational KMS implementation in selected MT companies in Namibia from an individual employee's perspective, with the core viewpoint of what works or are the probable solution to the phenomenon (organisational KMS).

As mentioned in the purpose of this study in Chapter 1, the researcher implemented the approach discussed above in drawing up the research problem and questions as proposed by Harrison *et al* (2020). This helped the researcher to gather and scrutinise qualitative and quantitative data, integrate the data and use distinct designs that encompassed a theoretical angle or framework in the direction of pragmatism presupposition. Ultimately, a pragmatic approach permitted using a mixed-methods approach that rested on positivist and constructivist assumptions to offer a comprehensive understanding of organisational KMS implementation in selected MT companies in Namibia. The combination or use of quantitative and qualitative (lived/work experience) data exhibited some collective strength, giving a comprehensive understanding (organisational KMS implementation) as suggested by Harrison *et al* (2020).

The MM approach was grounded in six critical areas (Creswell and Plano Clark 2018; Gaglio *et al* 2020). These are issues such as terminology and necessary explanations or classifications in the MM approach. The effectiveness of the mixed methods,

paradigmatic underpinnings and design issues were used in drawing inferences and logistical conclusive arrangements in MM research (Gaglio *et al* 2020). The researcher's understanding of using the MM approach necessitated the ability to use diverse bases of data. This was to produce a complete and richer analysis of the research enquiry questions and make available the convergent or divergent status quo of organisational KMS implementation in selected MT companies in Namibia (Christensen 2020; Ellaway 2020).

In the study, a blend of nomothetic and idiographic concepts was used to display the two-fold persistence of generalisation and detailed thoughtful (of KMS implementation in MT companies in Namibia). This was to demonstrate equilibria from a larger sample while understanding the others by a comprehensive study of a smaller one (Hashemi and Babaii 2013:830). In this case, the understanding that underlined the MM use was that an individual employee's behaviour is complex. It is essential to understand behaviour both broadly and in-depth; hence the MM study was well suited as proposed by Harrison *et al* (2020:3). Furthermore, organisational KM, specifically KMS implementation, was based on diverse milieus that hinge or consist of various links that focus on the management of individual employees at various positions and stratum within Namibian MT companies.

For the reasons above, coalescing qualitative and quantitative methods was meant to bring together various strengths considering the non-corresponding weaknesses of the qualitative and quantitative methods (Christensen 2020; Ellaway 2020). Furthermore, this study was comprehensive, using flawed, robust interpretations answering research objectives and questions using quantitative and qualitative methods to exemplify the facts. This approach allowed direct comparison and obtained convergent or divergent disagreements or similarities to reasonable conclusions or findings of the extent of KMS implementation in MT companies in Namibia (Zhou and Creswell 2012; Ivankova and Plano Clark 2018; Plano Clark 2019; Creswell and Plano Clark 2018; Creswell and Creswell 2018).

Furthermore, a decision was made to explain the sample in the subsequent segment and principles for selecting research respondents (Creswell 2014; Creswell and Plano Clark 2018:104). In addition, using the MM approach to furnish a set of circumstances makes it possible for latitude or capacity to gain an accurate and in-depth

understanding of the process (qualitative) and outcomes (quantitative) or individual-level (qualitative) and organisational level (quantitative) specific spheres of knowledge for organisational KMS in MT companies in Namibia (Harrison *et al* 2020).

Therefore, the MM approach was used to enhance the investigation of KMS implementation in selected MT companies in Namibia. This was to create an understanding of the observed KMS strategy, tools, infrastructure and challenges that hinder its implementation by the MT companies in Namibia. This approach created some breadth (better understanding), gave a better picture, enhanced description and corroboration of the findings and provided richer, more meaningful details to address the research questions (Harrison *et al* 2020). The MM approach assisted in obtaining in-depth and comprehensive insight on KMS implementation in MT companies in Namibia (Christensen 2020; Ellaway 2020). The researcher found it critical that senior managers were a part of the study. This was due to the understanding that they had an in-depth understanding and were essential drivers of making and providing the organisational strategic focus of selected MT companies in Namibia. These managers are also drafters of policies that influence the direction of these organisations in relation to strategy adaptation.

This researcher believed that using the MM approach would direct the study to realise in-depth, comprehensive and sound conclusive results regarding objective and subjective KMS implementation in MT companies in Namibia (Christensen 2020; Ellaway 2020). The MM approach was also employed to strengthen the quantitative and qualitative methodology to produce a comprehensive broadband of the study (Ngulube 2015). When a study uses an MM approach, it aims to achieve elaboration, generalisation, data integration and interpretation to create enriched insights that have a higher impact (on organisational KMS for KM practice) (Harrison *et al* 2020).

Furthermore, the MM approach was used for the convergence of collected data to heighten its credibility for reasonable conclusion by complementarity in locating a pragmatic stance (of organisational KMS implementation in selected MT companies). Also, to clarify results that combine explanation, numbers and narrative perspective support comprehension and social reality comprehensively (Hesse-Biber 2010:5; Christensen 2020; Ellaway 2020). In this study, the MM rigour hinged on two categories (Harrison *et al* 2020; Christensen 2020; Ellaway 2020). The categories are

the primary and advanced elements. The primary elements are core characteristics of the MM approach. They expound rigorous data collection, analysis, integration (mixing both data, which was the cornerstone of this study) and specific use of the MM design (Christensen 2020; Ellaway 2020).

The advanced element catered for establishing official standard proceedings of conducting a MM study, providing discussion of the MM approach and employing aspects of writing to promote the MM approach (Harrison *et al* 2020:5). These elements were associated with this study's methodological rigour contained above and below in different sections (Harrison *et al* 2020) to untangle organisational KMS in MT companies in Namibia. The following section discusses research designs for the mixed methods approach adopted for this study and goes through the study research questions.

#### **4.4 Research Design**

In this study, a research design was also a fundamental point of departure (Ngulube 2019). The research design employed by this study was pragmatically influenced. Issues of research design entail an element of measurement for gathering, assembling, analysing, scrutinising, interpreting, understanding and commenting on data (Ngulube 2019, Creswell and Plano Clark 2018, Creswell and Creswell 2018, Harrison *et al* 2020). According to Sarantakos (2013) and Creswell and Plano Clark (2018), a research design includes choices on how the study will be conducted, how research participants or respondents will be reached, sample techniques, data collection techniques, data analysis and presentation processes, and how all of these processes will be managed. According to Yin (2015), a research design rests on five fundamentals: case study, proposition, units of analysis, logical procedures connecting the data to the proposal and criteria for construing the results and findings. Hence, a research design was a strategy applied in data collection and analysis to reach a reasonable conclusion on organisational KMS implementation in selected MT companies in Namibia. This was based on the established empirical procedures of a MM approach to understanding organisational KMS in MT companies in Namibia.

**Table 4: Types of research designs (Source: Creswell 2014:41)**

Quantitative	Qualitative	Mixed Methods
Experimental designs Non-experimental designs, for example, surveys	Narrative research Phenomenology Grounded theory Ethnographies Case study	Convergent Explanatory sequential Exploratory sequential

Before discussing the design that underpinned this study (convergent design), it was essential for the researcher to comprehend different the fundamentals and classification of designs that guide the MM approach as directed by Zhou and Creswell (2012); Hashemi and Babaii (2013:830); Ivankova and Plano Clark (2018); Plano Clark (2019); Creswell and Plano Clark (2018) and Harrison *et al* (2020). These authors continue to influence this study and they state that research design assists with an important decision that underlies the history, objectives, meanings, philosophical presupposition, theory, processes, integration, strength, contexts and alternatives for the phenomenon explored. In the present study, Table 4 shows the typology of the core mixed methods design such as convergent, explanatory sequential and exploratory sequential designs (Zhou and Creswell 2012; Creswell and Plano Clark 2018; Ivankova and Plano Clark 2018; Plano Clark 2019; Harrison *et al* 2020; Munce, Guettermann and Jaglal 2020). These designs are discussed in sub-Section 4.4.1-3 below. This study did not use explanatory and exploratory sequential designs. However, they were essential and worth explanation for the benefit of the study (Creswell and Plano Clark 2018).

#### 4.4.1 The Exploratory Sequential Design

The exploratory sequential design is a progression approach where the researcher firstly tracks the qualitative research approach and then the quantitative approach (processes) (Hashemi and Babaii 2013; Edmonds and Kennedy 2017; Creswell and Creswell 2018; Creswell and Plano Clark 2018; Ivankova and Plano Clark 2018; Plano Clark 2019; Munce, Guettermann and Jaglal 2020). The design is based on qualitative conclusions to develop an instrument to collect quantitative data (Creswell and Plano Clark 2018; Munce, Guettermann and Jaglal 2020). It is in this line that Creswell and Creswell (2018:306), Harrison *et al* (2020) and Munce, Guettermann and Jaglal (2020) respond that qualitative data are examined in part, with the understanding of generating abstract realms transported to the quantitative phase.



Furthermore, the above authors state that, from time to time, the quantitative feature is based on evolving a relatively subtle measurement tool and piloting with a sample or finding new variables unavailable in the reviewed literature or customised to a precise populace explored. Considering the strategy starts with the qualitative approach, exploration or discovery of the phenomenon is based on a picture of:

- a) Measures, instrument(s), testing, experimental procedures that do not exist;
- b) Variables are not defined or unidentified;
- c) No guiding framework or theory; and
- d) A need to make an existing quantitative estimate or tool targeting research participants (Creswell and Plano Clark 2018:84).

Purposive sampling is used in the qualitative component of this design, while random sampling is used in the quantitative component. The design's philosophical understanding is based on the constructivist theory during the first stages of the qualitative approach. When efforts are projected to the quantitative approach, it is based on the positivist theory to identify and measure variables and statistical developments (Creswell and Plano Clark 2018; Harrison *et al* 2020). The design necessitates that the researcher conducts a thorough and systematic research study. Therefore, it is essential for researchers using this design to understand that the stage that takes care of the quantitative approach needs to be detailed, and two different samples ought to be acknowledged. In the second segment, a large number advancing the generalisation of the quantitative findings decide which qualitative results are to be used. Qualitative data analysis is projected to produce or offer quotes, encryptions, codes and themes (Creswell and Creswell 2018). This design was not used in this study due to the reasons suggested by Creswell and Plano Clark (2018) and Munce, Guettermann and Jaglal (2020).

#### **4.4.2 The Explanatory Sequential Design**

The explanatory sequential design is often referred to as the explanatory strategy (Zhou and Creswell 2012; Creswell and Plano Clark 2018; Edmond and Kennedy 2017). This design aims at two distinct stages (in sequence) for the quantitative and qualitative data collection and analysis components in a single study. It follows a chronological progression by first collecting and analysing quantitative data to inform the second stage of qualitative data collection (Cantarelli, Belle and Longo 2019;

Creswell and Plano Clark 2018; Isaacs, Roman and Savahl 2017; Creswell and Creswell 2018; Harrison *et al* 2020). Sampling under this design takes place at two centres for quantitative and qualitative components in a single study.

The quantitative findings enlighten the categories of research participants in the direction of a purposefully designated qualitative segment and the categories of questions to be asked of the participants (Isaacs, Roman and Savahl 2017; Cantarelli, Belle and Longo 2019; Creswell and Creswell 2018; Harrison *et al* 2020). After reasonable qualitative findings, the results are used to offer an in-depth explanation for a follow-up on the quantitative approach. Its philosophical lens through post-positivism for quantitative approach assists with the development of the instrument to measure variables and evaluate statistical conclusions before using constructivism assumptions for qualitative analysis (Zhou and Creswell 2012; Creswell and Plano Clark 2011; 2018). Furthermore, when using this design, the final reasonable conclusions of the study should be based on two philosophical assumptions. The overall goal of the design is to use qualitative data to aid in the detailed explanation of preliminary quantitative findings. Consequently, it is central to linking the quantitative results to qualitative data collection (Creswell and Creswell 2018). This design was not employed in this study.

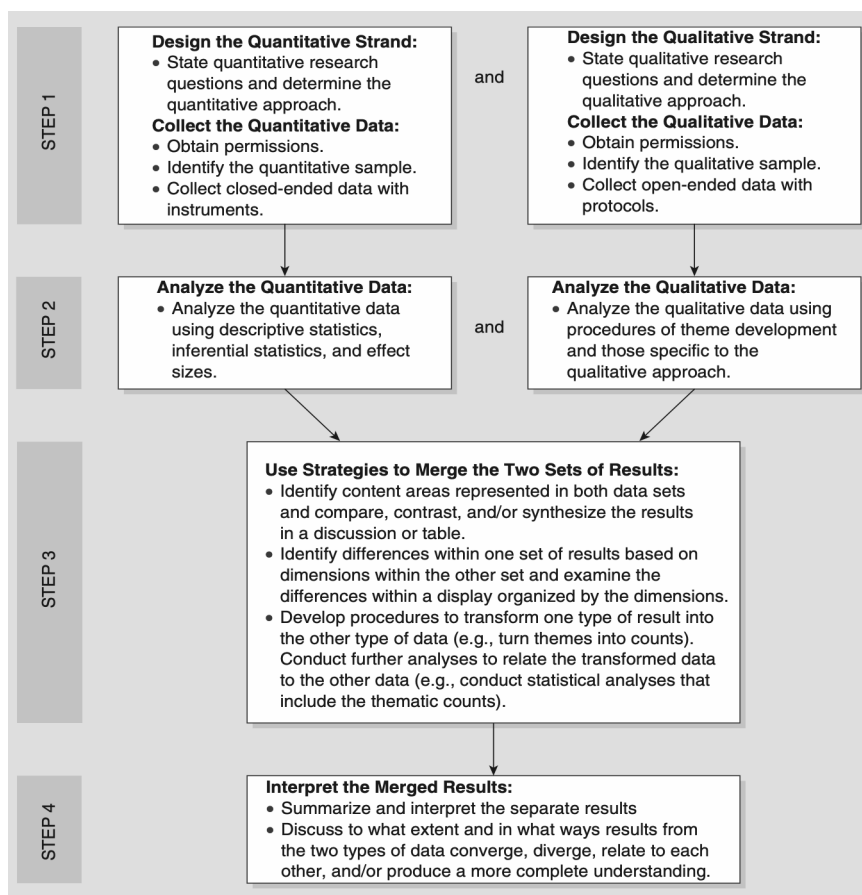
#### **4.4.3 The Convergent Mixed Methods Design**

This study adopted the convergent MM design to investigate organisational KMS implementation in selected MT companies in Namibia. In a convergent parallel design, the researcher collects and examines two isolated databases (quantitative and qualitative) in parallel before merging or amalgamating the findings (Creswell and Plano Clark 2018; Creswell and Creswell 2018; Ngulube 2019; Miller *et al* 2020). Using this design, the researcher offered a comprehensive comparison of the quantitative conclusions with qualitative results to understand and draw reasonable conclusions on organisational KMS implementation in selected MT companies in Namibia as directed by Creswell and Plano Clark (2011; 2018) and Miller *et al* (2020). Merging the data took place when researchers seized the twofold databases organised for analysis and assessment or comparison for organisational KMS in MT companies (Miller *et al* 2020). While embedding consisted of any mixture of connecting, constructing or merging, the symbol was persistently joining qualitative to quantitative data collection

at numerous arguments as directed by Fetters, Curry and Creswell (2013) and Ngulube (2019). For detailed use of the design in this study, Table 5 below shows the steps followed by the researcher in applying a convergent mixed methods design to understand organisational KMS implementation in selected MT companies in Namibia.

Convergent design integration was essential for the processing and merging of findings from qualitative and quantitative data, where comparisons were made to ensure a comprehensive understanding of organisational KMS implementation in selected MT companies in Namibia as proposed by Miller *et al* (2020). Where possible, data alteration was needed to develop codes and themes considering variables as per constructs under TOE and SECI frameworks concerning the research objectives stated in Chapter 1. The data collected using the qualitative research approach was equated to that collected in the quantitative research approach.

**Table 5: Convergent mixed methods design (Source: Creswell and Plano Clark 2018:70).**



The integration stage entailed combining quantitative and qualitative data results. This was to generate associations or comparisons for in-depth comprehensive indulgent that emerged or was provided independently and merged by the quantitative or qualitative conclusion (Creswell and Plano Clark 2018:71). The researcher used the suggestion by Ngulube (2019:440) that complementary quantitative and qualitative data ought to be collected concurrently for an in-depth understanding of the phenomenon and to confirm convergence or corroborate divergence. The interpretation was drawn based on quantitative and qualitative results in reference to Ngulube (2019); Creswell (2015; 2018); Creswell and Plano Clark (2011; 2018). Under the convergent parallel mixed-methods design, Creswell (2013) suggests that it is a procedure of the MM design used by the researcher to assemble or amalgamate quantitative and qualitative data to have or make available an all-inclusive exploration of the research problem.

During this design process, the researcher characteristically brought together two mutual measures of data (quantitative and qualitative) that were incomplete during the same period and then mixed them during interpretation or explanation of the inclusive findings (Miller *et al* 2020). The process permitted the researcher to explain conflicts, inconsistencies or different results (Creswell, 2014; Creswell and Plano Clark 2018:61). According to Creswell and Plano Clark (2018:71), notwithstanding the importance of being positioned on each of the two components, the general intent was to assemble or relate the findings of the quantitative and qualitative databases for final reporting. It was essential to mention that the fundamental notion for using this convergent mixed methods design was to gather all forms of data by the parallel constructs or concepts directed by the conceptual framework and literature discussed in Chapters 2 and 3 (Creswell and Creswell 2018:300). In light of that, a convergent design considered a discussion of the inferences that the researcher constructed by amalgamating the findings (Creswell and Plano Clark 2018). In the same vein, Miller *et al* (2020) propose that the use of numerous techniques offsets or neutralises preconceptions in investigating the same phenomena to strengthen the validity of the research findings since only one method usually yields biased and limited results. Furthermore, considering difficulties when engaging in convergent designs. The researcher used cross-checking analysis, looking at the interface of the quantitative and qualitative constituents of the data as suggested by Hatta *et al* (2018) and Creswell and Plano Clark (2018:71).

## 4.5 Case Study Selection

The study adopted a multiple case study procedure approach. The understanding was that the case study underpins comprehensive coverage of various topics by a small group of employees, in particular organisational KMS decisions. Ngulube (2015) states that a case study is the most preferred way of investigating KM. A multi-case study was planned for MT companies on one research question, and its code embraced measuring multiple conclusions inside a similar case (Yin 2015; Qiao, Liao and Randrup 2020). Gustafsson (2017), Moser and Korstjens (2017) and Alam (2020) postulate that a case study is rigorous about a specific individual, group of people or a unit and is aimed at generalising several units. Mhlongo (2018) believes that a case study deals with either single or multiple centres on an incident in a specific location. Yin (2018) and Qiao, Liao and Randrup (2020) agree by stating that, in a research project, the unit of analysis could be single and can be based on the case that could be a single, embedded or nested case exploration. Multiple-case research designs were employed to understand organisational KMS in Namibia. It was likely to be stronger than a single-case research design which is well-intentioned and can be used in amalgamation with other methods (Yin 2015:48; Alam 2020).

Qualitative and quantitative data were collected concurrently. Therefore, merging these two different data types gave a complete picture of organisational KMS implementation in selected MT companies in Namibia. The results of this study helped to address the research questions and demonstrated contradictions or divergent views, thereby assisting in understanding why the divergence occurred (Creswell and Plano-Clark 2018). The understanding lies beneath the fact that the purpose of the study explained in Chapter 1 warrants a multi-case case study. Mhlongo (2018) believes that the understanding of a multiple case study ought to be influenced by the importance of the problem, considered by the contextual realities that grant a situational picture to learn from or about. This case involved organisational KMS for two MT companies in Namibia at different locations.

Yin (2015; 2018) and Qiao, Liao and Randrup (2020) recommend that a researcher refers to the bounding of the case. This is essential because it speaks of the inclusion of research participants in the study and covers specific items in the study. As a result, the process assisted in understanding and determining the scope of the data collection

on organisational KMS and its context. The bounding case was the process of indicating the phenomenon explored (Mhlongo 2018). It turned out that, in this study, organisational KMS implementation referred to the phenomenon investigated and leaned towards TOE and SECI, assisted with the drawing up of the research question. From this perspective, Mhlongo (2018) believes that implementing the concepts forms an indication of KMS put into practice for KM in an organisation.

The researcher was of the understanding that detailing context is essential in the bounding of cases. Mhlongo (2018) advises that the study of human beings requires context. Patton (2014) agrees with this and says it assists the researcher to capture and understand different views, observe, explore and analyse configurations. Looking at what individual employees engage in, think and explore (examining) the association of the patterns is a form of foundation and construction of qualitative exploration. What took place within MT companies' employees rested on understanding the TOE and SECI framework of data collection, defining and drawing reasonable conclusions and findings with rigour. As a result, the researcher explored how organisational KMS implementation unfolds in selected MT companies in different organisations or contexts.

#### **4.6 Population**

Stangor (2011:110) defines a study population as the total group of individuals, communities, cultures, or organisations that a researcher wishes to explore. This investigation focused on two selected MT companies in Namibia. The human resources databases of the two selected MT companies, Telecom Namibia and Mobile Telecommunication Company, had a total of 1,584 employees. These two MT companies in Namibia constituted the study's population. According to Ngulube (2003:202) and Moser and Korstjens (2017), the units of analysis can be administrative units or identifiable organisational bodies existing in a repository. The unit of analysis was considered essential for defining the investigated topic. Yin (2015) concurs that identifying the case is essential, either by concentrating on the particular employee or by defining and restricting the case, which informed this case study.

The accessible population of senior managers constituted 20 (1.3%), such as IT managers, chief operational, financial, mobile, and commercial HR officers, were set for interviews. This was thought to bring in-depth different perspectives and contribute

to the strategic focus, policy drafting, and users of organisational KMS. These defined and identified units hinged on the understanding that individual employees in these units create OK, deposit and use organisational KMS for KM practice. The understanding was that organisational KMS processes were affected by actions in the database, repositories, or KMS daily by this populace. This was important because it assisted the researcher in avoiding or refocusing on understanding organisational KMS implementation, which was projected to comprehend individual employees' systems in MT companies. In light of the above, it was therefore important to purposefully select cases that were full of information so that the social researcher could learn a great deal about the main subject of the study (Manson 2002; Patton 2002:273; Mauz *et al* 2018).

A total of 329 (21.1%) of the accessible population comprising departmental employees (IT practitioners, sales representatives and administrative clerks) from the two identified companies responded to questionnaires. These groups were perceived as the implementers and users of organisational KMS and generated, created, stored, transferred and shared knowledge using collaborative tools.

In this study, therefore, 329 (20.8%) constituted the total accessible population for the whole study. A 5% margin of error was accepted, and a confidence level of 95% was required. Creswell (2011; 2018) suggests that such arrangements meet the representative and planned statistical test and provide a reasonable estimate for the parameters of the population. The study focused on MT companies' employees at their Head Offices in Windhoek, Khomas Region of Namibia.

#### **4.7 Sampling in the Mixed Method Approach**

To answer the research questions posed in Chapter 1, a decision regarding research participants had to be made. In this study, sampling was primarily focused on the study's purpose, with the core interpretation being to link the intent and the research questions (Ngulube 2019:442). In any study, two sampling categories, such as probability and non-probability, fall under the MM research wings. Choosing an MM sample involves issues of philosophical assumptions to understand social reality, as mentioned above. The researcher took part in a sampling process directed by pragmatic presuppositions (Creswell and Plano Clark 2018). These authors state that this route includes a description of the study locality, selecting the research participants distinctly, autonomously and equally responding to the identified research

questions. Data collection and analysis subscribe to quantitative and qualitative component procedures (Creswell and Plano Clark 2011; 2018).

Sampling in mixed methods depends on seven steps, and the outline, such as random and non-random sampling, is described by Collins, Onwuegbuzie and Jiao (2007) and Morse, Cheek and Clark (2018). From this perspective, quantitative academics have a habit of using statistical generalities, which encompass generalising conclusions and interpretations from a representative numerical sample to the population from which the sample was drawn (Onwuegbuzie and Collins 2007:283). A qualitative researcher's approach to small sample sizes is a deliberate choice of research participants' questions determined conceptually rather than representatively (Moser and Korstjens 2018). Therefore, in the present study, the sample was perceived to affect results by the strengths and weaknesses of the sampling measures. The design conclusions were applicable to the interpretation and understanding of the results (Patton 2015:475). Morse, Cheek and Clark (2018) state that sampling is the selection of any portion of a combined or totality based on which a decision or interpretation about the collective sum is made.

Sampling was vital since it highlights an effective depiction or representation of the characteristics or features of a population. This helped the researcher to comprehend the phenomena using quantitative and qualitative techniques independently and concurrently (Ngulube 2005). Onwuegbuzie and Collins (2007) caution that pronouncement is troubling if not handled with care due to mixing quantitative and qualitative approaches. These authors above state that the process depends on sampling arrangements that need to be formulated for both the qualitative and quantitative constituents of the research project. MM sampling hinges on time orientation and is sequential. Based on the understanding that time orientation denotes whether the quantitative and qualitative stages in data collection take place independently of each other (concurrently in this study) or one after another (sequential) or depends on the other to a certain degree (Morse, Cheek and Clark 2018). This study used different participants concurrently and independently at different levels, as suggested by Creswell and Plano-Clark (2011; 2018) and Ngulube (2019).



This study adopted the parallel sampling approach, where several quantitative and qualitative samples were drawn from the same underlying population (Hashemi and Babaii 2013; Creswell and Plano Clark 2018; Ngulube 2019). Parallel sampling supports convergent or concurrent designs. Convergent MM sampling involves sampling successively using a method concurrent to autonomous samples (Hashemi and Babaii 2013; Creswell and Plano Clark 2018). What arises from this understanding is that the researcher used different samples at a time and selected the populace for concurrent and independent quantitative and qualitative approaches to obtain divergence, disagreement or similarities to organisational KMS implementation in selected MT companies in Namibia. Creswell and Plano Clark (2018) suggest that using convergent design and selecting participants to participate in the quantitative and qualitative threads is based on including a sample of different participants.

In this study, 309 respondents, comprising information technology practitioners, sales representatives, and administrative clerks and departmental employees from various departments of the two companies were selected using proportionate random sampling and were requested to complete questionnaires. On the other hand, a total of 20 senior managers were purposely (purposive sampling) selected using case study participants who responded to the interviews. Creswell and Plano Clark (2018) recommend that a different sample size be used for the research to collect in-depth qualitative exploration and rigorous quantitative investigation phenomena (in this KMS implementation). The workforce formations of the two MT companies were made available in the sampling frame, representing 20.8% of the total accessible population of this study.

Parallel sampling was done to understand the representation, legitimation, integration and politics of the study. Representation refers to using quantitative and qualitative stages by sample exemplification characteristics equally, using small sample size for qualitative standards and a quantitative approach to representing the sample employing the law of probability (Onwuegbuzie and Collins 2007; Morse, Cheek and Clark 2018).

In light of the above, legitimation is gathering data that leads to reasonable conclusions about credibility, trustworthiness, reliability, convenience or verifiability and considering internal and external validity. Integration is the extent to which the study

took care of the combination of qualitative and quantitative approaches about the data collected to fit equally into the objective, purpose and question of the study. At the same time, the researcher anticipated issues that could arise due to pressure when other MM researchers interpreted the study's conclusion concerning contradictions and inconsistencies. The researcher strove to make sure that the process of comparing, merging or contrasting findings was done correctly (Creswell and Plano Clark 2018; Hashemi and Babaii 2013; Collins, Onwuegbuzie and Jiao 2007; Onwuegbuzie and Collins 2007). The following section discusses issues relating to the sampling procedure in MM research for this study.

#### **4.7.1 Sampling Procedures**

What was central to the study was that the sampling measures used by the researcher were fully pronounced, clarified and realistic so that other researchers, reviewers and readers had the benefit of context in adjudicating the sample used (Patton 2015:475). As mentioned before, in the MM approach, sampling falls into two types: random (probabilistic) or non-random sampling (non-probabilistic) (Onwuegbuzie and Collins 2007:283; Torres and De la Cruz 2015, McKim 2017). These authors state that sampling structures comprehend procedures for deciding on samples conventionally related to the qualitative approach (non-random sampling schemes) and those characteristically connected with the quantitative approach (random sampling schemes).

In the MM approach, either probability or purposive sampling was essential to determine whether the study could generalise its conclusions beyond the MT companies. Therefore, it was necessary to define the sampling procedure employed in this study. Probability sampling techniques are primarily referenced with quantitative research and aim to achieve representativeness of the entire population (Hesse-Biber 2010; Creswell and Plano Clark 2018; Yin 2018). Purposive sampling techniques, on the other hand, are mostly used in qualitative studies. They may be defined as picking units (individuals, groups or institutions) based on specific purposes associated with proffering correct responses to a research study question.

TN Mobile and MTC were selected as units of analysis on purpose because they were thought to have formal or informal organisational KMS for KM practices. Purposive sampling was used for non-probability sampling of senior managers who responded

to interview questions. The use of a small qualitative sample was permissible because it increased the depth and breadth of the investigated phenomenon (Creswell and Plano Clark 2018). Probability sampling was applied for quantitative research to address sub-objectives 2, 3, 4, 5, and 6 using simple random sampling for IT practitioners, sales representatives, administrative clerks and other departmental employees, which constituted 309 respondents. It is therefore important to note that three hundred and twenty-nine employees participated in the study. These sampling measures were employed in selecting a subset of research participants who denoted 20.8% of the population of the selected MT companies in Namibia.

#### **4.7.2 Sample Frame**

Scholars uphold the view that sampling frames are formal or informal lists of units or cases from which the sample of a particular study is drawn (Mooney and Garber 2019). The MM researcher decided how to handpick samples for the qualitative and quantitative constituents and appropriate sample sizes for the collective segment to define the degree to which to create arithmetical or diagnostic generalisations (Yadav, Singh and Gupta 2019). DiGaetano (2013:296) cautions: "...when defining a file to aid as an architect for a sample frame for a study, the most significant thought is grounded on the scope to which the framework ought to cover the target population". The study adopted the six structures required for a supreme sample frame: coverage, eligibility, duplication, the accuracy of contact information and supplementary information accessible on the sample frame as suggested by DiGaetano (2013) and Mooney and Garber (2019). Given these desirable features of an ideal sampling, probability sampling techniques were used to sketch and epitomise a distribution with many observations.

A purposive sampling technique, on the other hand, was used informally based on the researcher's verdict or some existing resources classified by the researcher (Mooney and Garber 2019; Yadav, Singh, and Gupta 2019). The study used two MT companies' current human resource databases for the quantitative approach as a sample frame, using simple random sampling to draw out research respondents (n = 309). Each employee in the MT companies in Namibia as a sampling frame or preferred population had an equal and independent chance to be selected for the study (Yadav, Singh and Gupta 2019). The researcher used purposive sampling to select 20 senior managers for interviews in the qualitative approach by looking at organograms

provided by MTC and TN in Namibia. Reference is made to DiGaetano (2013:296), who used a physician listing as the source of sample frames in investigating surgeons in his study. From this perspective, the study explored multiple factors that hinder KMS implementation and provide logical illustrations.

#### **4.8 Data Collection Methods**

In this study, MM data collection involved multiple interconnected basics such as sampling, granting permission, collecting, recording data and administering procedures on the progression of quantitative and qualitative research (Creswell and Plano Clark 2018; Ghauri, Grønhaug, and Strange 2020). The researcher did quantitative and qualitative data collection concurrently and independently. The study used self-administered questionnaires and semi-structured interviews and document collection for analysis. Harris and Brown (2010) and Ghauri, Grønhaug and Strange (2020) suggest that questionnaires, interviews, and document analysis are often used in the MM approach to engender fertile cross-pollination of results, despite differences in the methods of data collection, analysis, and interpretation. In the convergent MM design, the data collection and analysis happen simultaneously for the survey and interviews of all research participants of the study (Fetters, Curry and Creswell 2013).

Before embarking on data collection, ethical clearance from the University of South Africa, research participants and locations was required as per the University of South Africa Policy on Research Ethics (University of South Africa 2014; 2016). The researcher obtained ethical clearance for the study during the proposal phase and an introductory letter from the project promoter. Subsequently, the researcher wrote a letter (see appendix 2 and 3) to the managing directors of the MT companies seeking consent to carry out the study. After obtaining a list of email addresses from the two MT companies, the researcher emailed questionnaires and the consent form to the respondents via research gatekeepers. During interviews (with informed consent introductory remarks), the researcher engaged in document analysis as suggested by Parton (2015).

The study used questionnaires for personnel from the two companies. Ghauri, Grønhaug and Strange (2020) describe a questionnaire as an organised or established set of questions used to collect data in a written format from the research respondents, mostly connected with quantitative procedures. The advantage of using

self-administered questionnaires was that they allowed participants to respond freely. Many detailed responses were obtained through confidentiality from unnamed sources and lenses (Ghauri, Grønhaug and Strange 2020). The researcher believed that organisational KMS is better measured using a questionnaire based on the five-point Likert scale. The advantage of using questionnaires is that they are self-administered and collect vast amounts of evidence from various respondents (Yin 2018; Ghauri, Grønhaug and Strange 2020). In this study, the self-administered questionnaire comprised closed- and open-ended questions. The questionnaires were emailed to research respondents (Muratovski 2016; Ghauri, Grønhaug and Strange 2020) via the gatekeepers. Section (A) of the questionnaire collected demographic data on each of the middle management respondents. Section B collected information about organisational KMS implementation by tabulating research objectives and questions stated in Chapter 1.

Moreover, the study used interviews to collect qualitative data. Yin (2014; 2018) argues that interviews provide an essential source of qualitative data. Moser and Korstjen (2018) and Ghauri, Grønhaug and Strange (2020) believe that qualitative research interviews attempt to solicit and describe the meaning of central themes in the lived world of the research participants. Using interviews, the researcher asked relevant questions during face-to-face discussions with senior managers in MT companies in Namibia. Structured interviews (using a tape recorder) were for senior managers. A clean verbatim transcript was used for checking and showing the essential findings, themes and descriptions for the study as suggested by Muratovski (2016); Ghauri, Grønhaug and Strange (2020). The researcher clarified the data analysis from each senior manager interview as proposed by Ghauri, Grønhaug and Strange (2020). Initially, open coding was done with recurrent readings to investigate developing classes, categories and conceptions relevant to organisational KMS in MT companies in Namibia (Muratovski 2016; Yin 2018 Ghauri, Grønhaug and Strange 2020).

This process was followed by axial coding to programme associations in the classes, categories and concepts shown in the open coding technique (Ghauri, Grønhaug and Strange 2020). Analysing data by open coding gave a representation of classes and concepts, followed by axial coding to discover or expose contacts or connections among the code and concepts concerning the attributes of organisational KMS

implementation. At the end of coding for each cause or foundation, the researcher observed codes, conceptions and comparable themes transversely, illustrating the manifold foundations (Lageson 2017). Interviews can be used for verifying, amending and extending data and gathering facts and explanations (Ghauri, Grønhaug and Strange 2020). The researcher had two senior contacts at MTC and TN Mobile who acted as gatekeepers. These individuals understood the proposal and were open to a study on organisational KMS implementation (Creswell and Plano Clark 2018).

For the qualitative approach, analysis commenced as the data was collected, using ATLAS.ti 22 and Google cloud software to track codes and themes. Sarantakos (2013) and Ghauri, Grønhaug and Strange (2020) suggest that the benefits of interviews are that they are apparent when respondents cannot be directly observed. They offer a high degree of control and afford discussion and a better response rate. Using interviews, the interviewer observed the interviewee's behaviour, corrected any confusion and clarified unclear questions. In contrast, document scrutiny entailed the methodological course of analysing, transforming and summarising information to make sense out of it or identify essential elements or themes to reach reasonable conclusions (Ghauri, Grønhaug and Strange 2020). It is the process of evaluating or assessing documents crucial to understanding organisational KM concerning KMS in MT companies in Namibia. The MT companies' documents, such as strategic annual work plans and policies were analysed. Qualitative data was based on three concurrent activities: data condensation, display, drawing and verifying conclusions (Miles, Huberman and Saldana 2014:31).

Parton (2014) and Busetto, Wick and Gumbinger (2020) believe that anything in black and white can be used as a foundation and analysed as qualitative data in document analysis, including assessment reports, conference minutes, customer item files, articles, blogs and Facebook columns. The researcher scrutinised, verified or clarified documents to reach a reasonable empirical conclusion. Document analysis was used for the qualitative component to review policies, strategic and annual plans and report using corroboration of evidence to seek convergence and corroboration with different data sources. The document analysis was used to determine the implementation of organisational KMS implementation in selected MT companies in Namibia (Busetto, Wick and Gumbinger 2020; Wood, Sebar and Vecchio 2020).

All quantitative and qualitative data was stored in a password-protected computer (Lageson 2017). From the beginning of the study, measures were put in place to ensure no other person could access the data. The researcher generated and developed folders on the computer using the senior manager's identification and credentials code and the data type to differentiate the numerous sources and foundations. Data entry was thus systematised and confidentiality preserved. The uploaded data uploaded, stored or deposited using Koichi Higuchi (KH) Coder three (3) and Google Cloud software for simplicity of entry to data analysis. All the contemplations or reflections concerning daily, weekly or monthly notes were securely kept and protected in a filing cabinet locked at the researcher's house (Lageson, 2017:63). It is important to state that, although quantitative and qualitative data were merged, the scope of each approach was equally tailed as required by the convergent design to avoid putting more emphasis on one than the other (Harrison *et al* 2020). These authors maintain that is how the rigour of the mono-methodological approach ought to be kept in a MM study.

#### **4.9 Data Analysis and Presentation**

Data analysis in MM research involves analysing the quantitative and qualitative data (Creswell and Plano Clark 2018; Ngulube 2019). In this study, the data collected from convergent design was analysed by mixing the positivist and interpretivist approaches (termed the pragmatist standpoint on concurrent and autonomous progression) to obtain divergence, disagreement or similarities in the final findings. Data analysis was based on the researcher's progression in examining and looking for configurations and themes from collected data to reach a reasonable scientific conclusion. The process of data analysis included merging similar databases by mixing or assimilating the quantitative and qualitative data (Creswell and Plano Clark 2018:181; Ngulube 2019).

Crossover analysis and integration in the mixed methods design were performed based on an influential and rigorous understanding of the quantitative and qualitative strands (Hatta *et al* 2018:7; Creswell and Plano Clark 2011:172-3). Speaking about data analysis, Yin (2014:132) believes that it consists of examining, classifying, arranging, testing, amalgamating or merging evidence to produce actual reasonable conclusions and results. According to Hatta *et al* (2018:7), concurrent data collection is permissible for crossover-tracks analysis and some categories of combination in the mixed methods design. Therefore, the initial crossover to deductive and equally to

inductive and deductive followed in the quantitative and qualitative segments (Hatta *et al* 2018:7).

By so doing, it assisted in showing an understanding of organisational KMS implementation in selected MT companies in Namibia in the particular research question as stated in Chapter 1. From this perspective, the data analysis comprised examining, categorising, organising, tabulating, testing or recombining evidence to produce scientifically grounded conclusions (Yin 2015). The data analysis was made up of a progression of independent analyses of the quantitative and qualitative data using qualitative and quantitative methods (Creswell and Plano Clark 2018). During the data analysis, the MM researcher characterises, construes and authenticates the data and findings of both quantitative and qualitative conclusions (Creswell and Plano Clark 2018:181). Therefore, results were finally merged and contrasted with neutralising weaknesses and strengthening the quantitative and qualitative data (Ngulube 2019:440).

The Statistical Package for Social Sciences (SPSS) was used to analyse quantitative data. For example, the simple linear regression in data processing, capturing and analysis was used. Descriptive statistics such as univariate graphs, frequencies and percentages, depicted in histograms and bar plots, were also used. Statistical analysis involved analysing the data numerically using descriptive and inferential measures (Tashakkori and Teddlie 2009).

The interviews were recorded, transcribed and reviewed three to four times to provide a broader vision of the respondents' comments. First, the significance units were defined, and the associated codes allocated (Tajabadi, Ahmadi, Asl and Vaismoradi 2019). Teddlie and Tashakkori (2009: 218) believe that qualitative data analysis examines various procedures of descriptive data and data stored in auditory, audio-visual and other presentations. The researcher followed Yin's (2016) suggestion on compiling, disassembling, reassembling (arraying), interpreting and concluding qualitative data analysis. These authors suggest that this process assists the researcher to sort field notes in a useful order, do an assessment, assign labels and codes, use practical themes to reassemble and illustrate findings through graphs to interpret data and draw reasonable scientific conclusions. Using a qualification process of connections and variations throughout codes, the data were categorised



and classified into themes and subthemes. The central theme of the analysis as a thread to link instances has been created as suggested by Tajabadi, Ahmadi, Asl and Vaismoradi (2019).

An understanding of these findings was influenced by Ngulube and Ngulube (2017), Maluleka (2017) and Ngulube (2015b). They contend that thematic data analysis is analogous to a qualitative study through the lens of interpretive phenomenology. These authors show that thematic data analysis hinges on the following steps: transforming interviews, observing valuable items, coding transversely comprehensive data, theme search, review of themes, diagramming provisional themes, checking for affiliation amid themes, defining and naming themes and concluding the analysis.

The data that was collected using structured interviews and documents were analysed subscribing to rich description (undergoing laborious qualitative content analysis) using ATLAS.ti 22 and Google Cloud software for quantitative content analysis such as manifest/patent content (the tangible rapports used for coding) and latent content (the coder's interpretation of the content) (Higuchi 2017; Miles, Huberman and Saldana 2014:832). Content analyses entail observational proficiency or artistry that permit a researcher to engage in a systematic assessment in summing up written messages or pictures (Harrison *et al* 2020).

The researcher checked the quality of quantitative data by factor analysis from the questionnaires. Factors from themes were compared with qualitative data. Results from qualitative and quantitative research were compared and reinforced with statistical characteristics by qualitative themes. At the data consolidation stage, qualitative and quantitative data were put together with themes that linked them in a matrix that makes it easy to find similarities and draw conclusions. Chapter 5 discusses both quantitative and qualitative results, where data from descriptive statistics were corroborated with the themes that emerged from the interviews (Morse 2003; Creswell 2018; Miles, Huberman and Saldana 2014). According to Creswell and Plano Clark (2018:71), notwithstanding the importance of being positioned on each of the two components, the general intent was to congregate or relate the findings from the QUAN+QUAL databases. Analysis and interpretations of research conclusions lens through the purpose of the study objectives and questions outlined in Chapter 1.

## **4.10 Reliability and Validity**

This section addresses aspects of the study's validity and reliability. Validity and reliability are the cornerstones of social science research. Validity and reliability have different implications for the study and have distinct meanings (Ghuri, Grnhaug, & Strange 2020; Parr, Gladstone, Rosenzweig, & Wang 2021). These concepts contribute to the evaluation of the study's measure in their own ways. Creswell and Plano Clark (2011, 2018) and Hesse-Biber (2016) point out that a study is reliable and valid because the results can be trusted. This mixed-methods study examined the organisational KMS implementation in selected MT companies in Namibia. Following the steps suggested by Creswell and Plano Clark (2011, 2018) and Hesse-Biber (2016), the approach improved the study's reliability and validity by yielding reasonable conclusions. It was regarded as a valuable technique that KM scholars and researchers could use to address KMS for KM management issues.

### **4.10.1 Validity**

According to Creswell and Plano Clark (2018), validity requires the identification of quantitative and qualitative study aspects in MMR. These authors further assert that the researcher must be capable of handling the integration aspect of MMR designs and the interpretation phase of the study. Therefore, validity under this study was typically associated with the extent to which the study's concepts categorically reflected the concepts that were intended to be measured. In light of this, the validity of this study was dependent upon the qualitative and quantitative approaches to data collection, informed by the literature review in Chapter 3, the conceptual framework and KM professionals as proposed by Creswell and Clark (2018). As suggested by Yin (2015, 2018), the researcher used internal validity, which is part of interpretation validity, to make sure that the interpretation was correct. The researcher re-read, coded, and classified the data using the Yin (2015) procedure. In addition, the process of systematically analysing the configurations found in the empirical data and the emerging theoretical explanation was utilized. Using a qualitative approach, the researcher targeted senior managers deemed information-rich for this study. These individuals served as the strategic focal points for MT companies in Namibia. According to Sekaran and Bougie (2016), another way to look at content validity is that a team of experts should support an instrument's content validity. KM experts looked over a questionnaire and interview questions, and their comments were used to change the questions and get approval for the final data collection tools. In addition, in consultation with the supervisor (professor), approximately equal improvements and

restructuring were made to the questionnaire to ensure that the objectives of the study could be attained. Parallel concepts were created for questionnaires and interview questions, and the researcher can compare group experiences with the individual during data analysis and side-by-side comparison of quantitative and qualitative data, as well as the execution of reversing or new analyses as suggested by Creswell and Plano Clark (2018). The validity was determined based on the total convergence (Granikov, Hong, Cristc, & Pluyed 2020). Further, the researcher ensured that the qualitative approach emphasised trustworthiness (conclusions worthy of consideration), credibility (depending on the credibility of producing a project report on the participant studied), and transferability (referring to inferences from a specific context to a particular receiving context (Ghauri, Grnhaug, Rosenzweig, & Wang 2021).

#### **4.10.2 Reliability**

According to Nayak and Singh (2015), reliability refers to measuring something multiple times with an instrument and obtaining the same result each time. To establish reliability, the researcher designed research instruments and analysed data following the literature review, TOE and SECI frameworks, and the research objectives of the study. Consequently, the dependability of multiple coders was advantageous for comparing established codes and themes. The researcher coded a transcript using a code book and compared quantitative and qualitative results to determine convergence. In this study, therefore, the consistency of a measure dependent on stability was maintained to guarantee its dependability. The interview guide consisted of questions similar to those posed to each participant. The questionnaires had similar or identical questions about internal reliability (agreement between codes and interview responses), categorisation of codes, adherence to the coding procedure, checking for disagreement between the codes and consulting with experts, practising reflexivity (memory), and double-checking major thematic types to ensure reliability. In other words, the measure was developed over time to produce favourable results in assessing research sample participants and does not fluctuate (Ghauri, Grnhaug, & Strange, 2020). Consistency is derived from this understanding when researchers classify translated data into categories or themes (Granikov, Hong, Cristc, & Pluyed 2020). Consequently, the researcher improved reliability analysis by ensuring uniformity in establishing item quotas for each organisation's KMS implementation impetus. The extent to which this study reached a sound and reasonable conclusion and produced sound and reasonable results was determined by its reliability. In

addition, this research confirmed the reliability and validity of quantitative and qualitative methods, as proposed by Romm and Ngulube (2014).

The researcher used the Cronbach Alpha (CA) score to ensure consistency in how well-established items are for each impetus for organisational KMS implementation concerning items indicated by the TOE and SECI frameworks. The CA score was the number of tests and average inter-item correlation among items calculated based on standards for CA as  $NR/\{1+(N-1)*R\}$ , where N represents the number of items and R refers to the average inter-item connection (Nam 2014:267). The author states that, if the number of items increases, the alpha value increases, and if the average inter-item connection is low, the alpha ought to be low; hence, as the average inter-item connection increased, it meant that the CA increased as well.

The content validity of the questionnaire items in this study has been confirmed by means of the content validity ratio and content validity index, both of which are measures of how well-understood a particular subject area is by a panel of experts, as suggested by Rezaei, Khalilzadeh, and Soleimani (2021). According to Rezaei, Khalilzadeh, and Soleimani (2021), the content validity of the survey questions should be confirmed when the content validity ratio values exceed 0.62. These authors believe that the content validity of the scale should be confirmed by calculating the CVI value of each item and finding that the average value is higher than the minimum value of 0.79, which is acceptable. In this study, therefore, a Cronbach's alpha reliability test was conducted to ensure that the construct was error-free and yielded consistent results. Cronbach's alpha was believed to be a correlation coefficient with a range of 0 to 1. This questionnaire contained five Likert-scale questions and was divided into four sections in accordance with the first five research objectives. As a result, the closer the coefficient was to one, the better or more confirmed the result as shown in Table 6.

**Table 6 Table Cronbach's alpha coefficient**

<b>Cronbach's alpha</b>	<b>Internal consistency</b>
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

However, the researcher would like to point out that this study only used a case study of MT companies in Namibia on organisational KMS implementation, which is similar to a description of the specific group's employees' philosophies, frame of mind, ideas and principles on organisational KMS for KM practice. Thus, it is believed that MT companies in Namibia are dynamic enterprises. However, the provisional environment in which they operate is constantly subject to reform or change, suggesting that the consistency of the conclusions should not vary due to the ever-changing organisational situations of these companies (Park, Ribière, & Schultz, 2004). The researcher recognises time constraints as a major limitation of the study. The specified research procedure had a predetermined timeframe for data collection. The collection of data occurred between February and May of 2020. Based on the schedules of the senior managers and researchers, the criteria for being able to take part in this study were not cast in stone. Due to senior managers' daily work schedules, the researcher had to reschedule interviews if the original one was missed, necessitating flexibility (Lageson, 2017:63). Following is a discussion of the ethical considerations involved in this study.

#### **4.11 Ethical Considerations**

Given the importance of ethics in social science research, the research respondents were aware of the study's objectives. This study conformed to the ethical standards suggested by the University of South Africa (UNISA) policy on research ethics (UNISA 2014; 2016). The researcher must clarify procedures taken to guarantee the wellbeing of research participants, processes of ethical comportment, informed consent, the confidentiality of evidence provided by participants and anonymity (Mhlongo

2018:102). Isreal and Hay (2006) note that the researcher ought to ensure that research participants in the study are not harmed, and that trust and honesty are guaranteed. From this perspective, Segalo and Molobela (2019:36) believe that research ethics are a central measure of any human-related research participant. It should be fundamentally objective to guarantee that the truths and dignity of potential research participants are acknowledged and appreciated.

An ethical clearance certificate was obtained for the study research before the study commenced. During data collection, research participants were informed of their right to agree or refuse or participate in the study. The information was provided in writing (cover introductory letter for questionnaires and interviews) (Segalo and Molobela 2019). Questionnaires were anonymously emailed to each research respondent to ensure confidentiality. Informed consent was also acquired in writing and the researcher respected the dignity of each respondent. All respondents were asked identical questions and treated in the same way during the study. Honesty was applied in all data processing, analysis, interpretation and presentation. The researcher also recognised the records used in the analysis. Personal information has not been given. It is standard practice for research respondents to be told in writing of all the study details and agree or refuse to participate. They have the right to leave the research at any time, and they must sign an informed consent form (Sarantakos 2013). The following section discusses the evaluation of the research methodology.

#### **4.12 Evaluation of the Research Methodology**

A mixed-methods approach using the convergent design was used to study organisational KMS implementation in selected MT companies in Namibia. This method assisted the researcher to approach the phenomenon from a quantitative and qualitative angle to provide a comprehensive analysis of organisational KMS implementation in selected MT companies in Namibia.

According to the researcher's knowledge, this research topic has not been investigated before using the MM approach via convergent design in Namibia. The literature revealed some information on organisational KM in Namibia but was limited about the organisational KMS for KM practice in MT companies. This study contributes to the understanding of organisational KMS concerning establishing the central character of employee factors and differences of end-user tools for the successful

creation, capture, storage, retrieval and sharing of OK with the support of senior management and infrastructure in selected MT companies in Namibia. The MM approach was seen as appropriate for merging quantitative and qualitative methods for various strengths and non-corresponding limitations to obtain divergence, disagreement or similarities to understand and develop reasonable conclusions on the extent of organisational KMS in selected MT companies. Furthermore, the convergence of collected data was necessary to increase the legitimacy of the organisational KMS in MT companies in Namibia. Emphasising the importance of harmonisation with the MM strategy, Chigada (2014) states that complementary, completeness and in-depth data sets when employing multiple cases brings advantages and assists the researcher to understand the topic in-depth during the limited time of the study.

Using the MM approach, the researcher was cognisant of the limitation of the MM strand via the convergent design as suggested by Creswell and Plano Clark (2011; 2018) and Hesse-Biber, Rodrigues and Frost (2015). Hence, other researchers who may wish to embark on a similar study must be cognisant of issues relating to responses via self-administered questionnaires, unavailability of research participants or inability to participate in the study. This could pose a challenge to researchers. On the other hand, using semi-structured interviews poses a risk of postponement of appointments, limited or cancelled sessions due to work commitments for interviewees. For document analysis, the researcher attempted to consult all relevant documents to the study; however, the non-availability of the same document presented a challenge, as the majority of organisational documents were retained as confidential. The researcher understands that the MM approach is critical since it offers a sound and reasonable conclusion for valid and reliable findings for the study.

#### **4.13 Summary Of The Chapter**

The research methodology was significant for this study since the findings or conclusions of this study were based on it. An outline of research designs was provided with the emphasis put on convergent parallel design and case studies. Issues relating to sampling in the MM research, data collection methods and ethical considerations were discussed, and steps taken to endorse the ethical concerns of the study. Chapter 5 discusses the presentation of the research findings.





## **CHAPTER FIVE: DATA ANALYSIS AND PRESENTATION OF THE FINDINGS**

### **5.1 Introduction**

This chapter presents data collected and analysed from respondents and participants in selected MT companies in Namibia using mixed techniques. Data were collected from senior and middle management as well as frontline employees via questionnaires and interviews with senior managers and document analysis. Data analysis and presentation were grounded in assessing collected data using convergent systematic procedures to arrive at plausible conclusions. This is because the act of converting unprocessed or disordered data into organised data was considered as critical to getting an understanding of the raw data collected. Data collected from the convergent design were analysed by mixing the positivist and interpretivist approaches to obtain divergence, disagreement, or similarities in the final findings.

Data analysis was based on the researcher's progression in examining and looking for configurations and themes from collected data to reach a reasonable scientific conclusion. The quantitative data obtained through the questionnaire were statistically analysed (descriptively) in SPSS version 22.0. Graphs and tables are used to illustrate descriptively reached reasonable conclusions. Content analysis was used to analyse qualitative data gathered via interviews and documents. The researcher used the ATLAS.ti 22 to extract, categorize, and link data segments in order to discover patterns and themes in interviews and documents. The most common themes from transcribed recordings and verbatim quotes were identified using the Google Word Cloud Generator. The qualitative findings are presented as descriptions of learning and concepts, accompanied by actual quotations from the interview transcripts. The findings from the questionnaire, interviews and document analysis are convergent. In mixed methods research, the researcher gathers data and then uses convergent techniques from exact comparable phenomena to maximise the breadth of the results (Creswell and Plano Clark 2018). The data confirmed or refuted what was coming from the questionnaires, interviews and documents analysed. Data were organised according to the study's research objectives, as stipulated in Chapter 1.

## 5.2 Response Rate

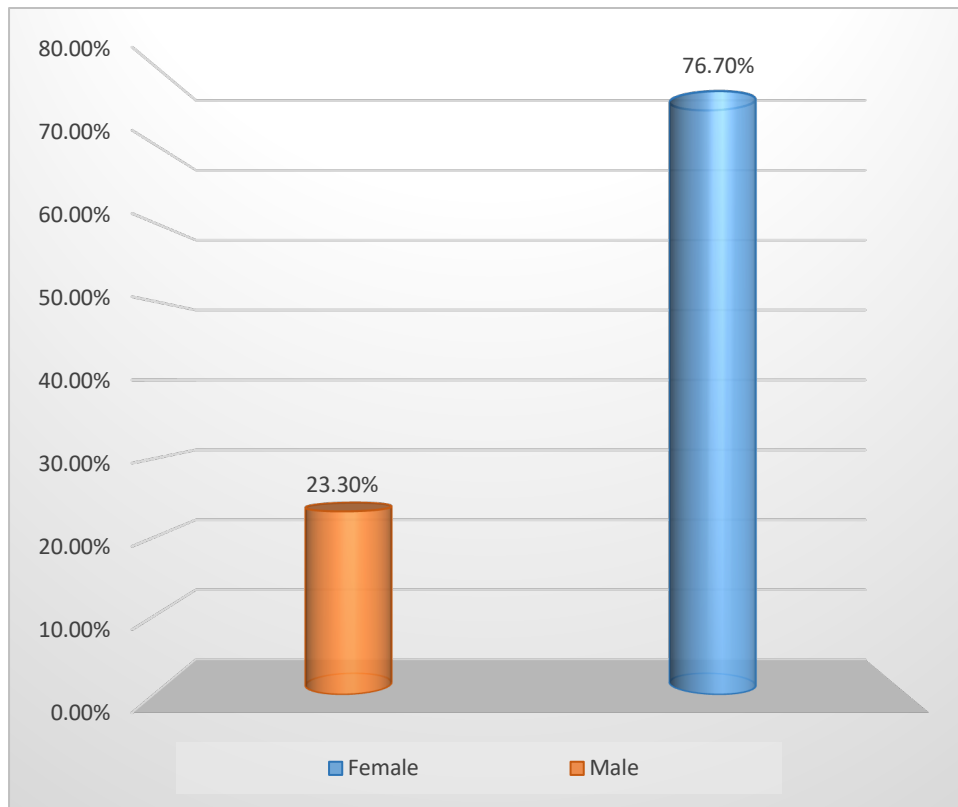
The researcher purposefully selected all fourteen (14) company province offices and two head offices of MT companies as data collection sources using the sampling techniques and procedures indicated in Chapter 4. Eleven interviews of the twenty scheduled interviews were conducted through Microsoft Teams and Zoom, and 309 online questionnaire links (using google forms) were generated and distributed via a contact person within the MT companies. Interviews lasted between 30 and 45 minutes on average. In total, the study lasted 495 interview minutes. The ages of senior managers were not elicited during interviews since the issue was regarded as contentious and such information was not required for the qualitative inquiry.

One hundred and seventy-six (176) questionnaire responses/answers were received online from 309 distributed online questionnaires, representing a 57% response rate, and 11 structured interviews were conducted online out of 20 planned, representing a 55% response rate. This indicates that this research had an acceptable response rate. Allen (2017); Brysbaert and Stevens (2018) opine that a response rate of 50% or 60% is considered acceptable for a survey, whereas 80% is considered excellent. Response rates was key to ensuring that the dataset was representative of the whole population. In other words, the conclusions reflect the opinions of all individuals to whom the thesis pertains. Questionnaire was designed in this study to maximise the quality and completeness of respondents' replies. This meant that only those that directly addressed organisational KMS implementation in all sections as per the objectives were included. While those that only had demographic data were excluded. Weekly email reminders, phone contacts, office visits at headquarters, and quick text messages from the researcher to gatekeepers all contribute to the high response rate.

For the qualitative approach, the researcher contacted research gatekeepers when scheduling and rescheduling interviews using brief text messages, emails and phone calls to gain access to participants, documents and office visits. Although some qualitative studies avoid analysing "the optimal number" of interviews, "there is clearly substantial variety in what is indicated as a threshold" (Dworkin 2012). Numerous articles, book chapters and narratives advocate and recommend between five and fifty interviews as sufficient for interviews (Dworkin 2012; Roller and Lavrakas 2015).

### 5.2.1 Respondents by Age and Sex

This study used a questionnaire to determine the age group of the respondents. Quantitative data indicate that 135 (76.7%) were between the ages of 22 and 35, while 41 (23.2 %) were beyond the age of 36. Figure 7 presents the respondents by sex group.

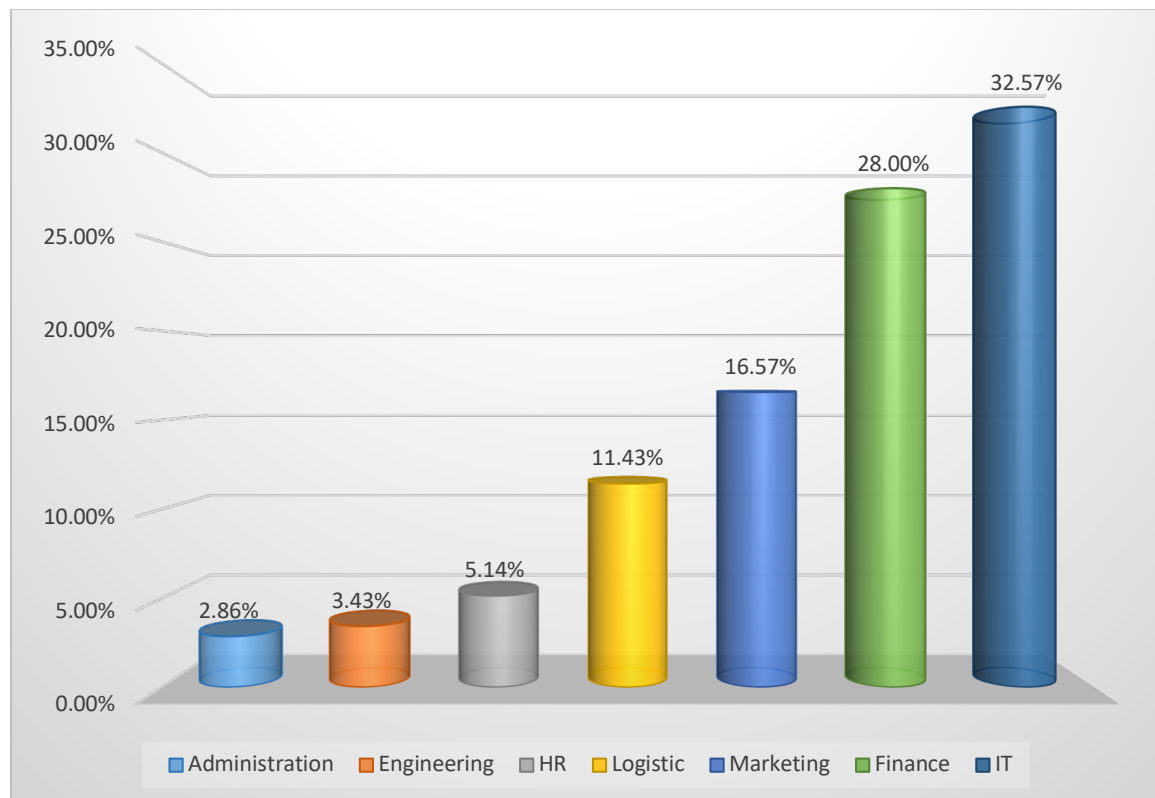


**Figure 7: Respondents by Sex Group (n=176)**

The study further sought to determine respondents' sex categories within selected MT companies in Namibia. According to the quantitative study, 135 respondents (77%) were female, whereas 41 respondents (23.3%) were male, as illustrated in Figure 7. In light of this, rather than comparing groups of variables, the gender of respondents was utilised to investigate the interactions employees had with organisational KMS implementation. In addition, it was supposed a good mechanism for evaluating the organisational KMS implementation in select MT companies. According to Bakkabulindi and Sekabembe (2010), Chun (2013) and Apcar (2021), the gender factor has a significant influence on organisational KM that must be explored.

## 5.2.2 Respondents Per Job Title and Department

The study provided provision to understand the titles and departments for quantitative and qualitative respondents within selected MT companies in Namibia. The distribution of quantitative respondents in Figure 8 shows that 57 (32.4%) were from the information technology department, 49 (28%) represented the finance department, 29 (16.57%) were from marketing, 20 (11.43%) from logistics, and the lowest were human resource 9 (5.14), engineering 6 (3.4%) and administration 5 (3%) respectively.

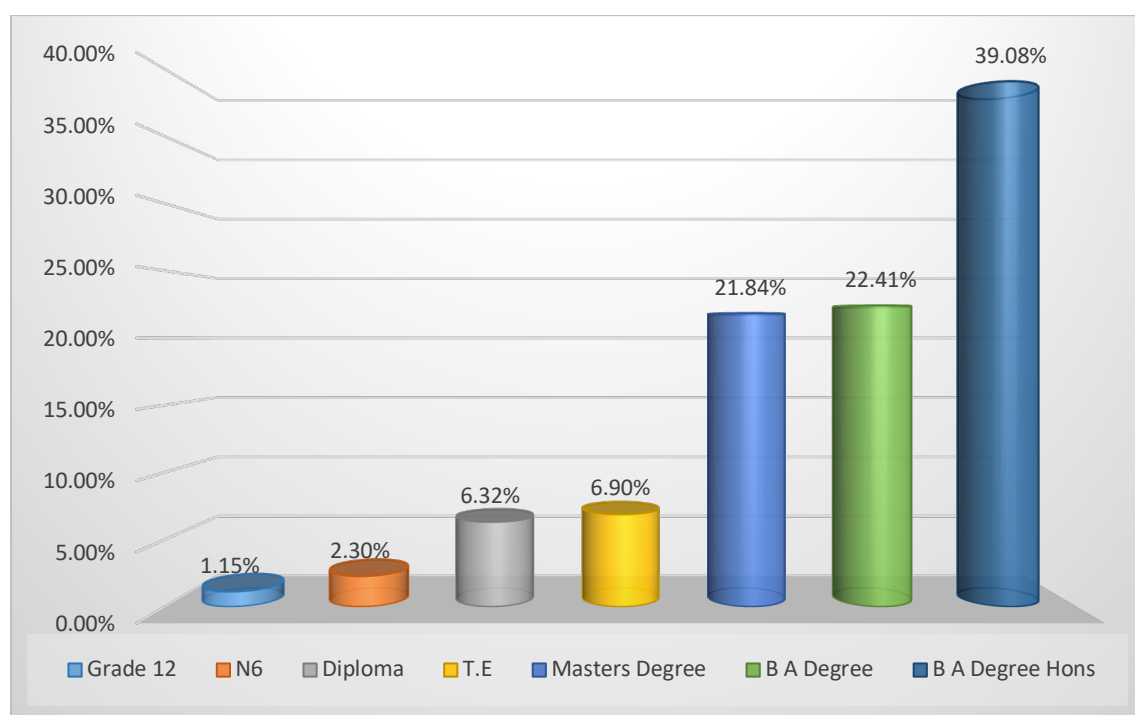


**Figure 8 Respondents by Departments ( $n=176$ )**

The study further sought to understand the period that the respondents had worked in selected MT companies in Namibia. The results show that 2-5 years 107 (61%), followed by 11-15 years 40 (22.8%), 5-10 years 18 (10.3%), with the lowest being 0-12 months 10 (6%). A combined 126 (71.6%) of quantitative respondents from IT, finance and marketing have worked for a long time in selected MT companies in Namibia. Quantitative and qualitative data were regarded sufficient to derive plausible conclusions in light of the respondents' and participants' extensive job experience.

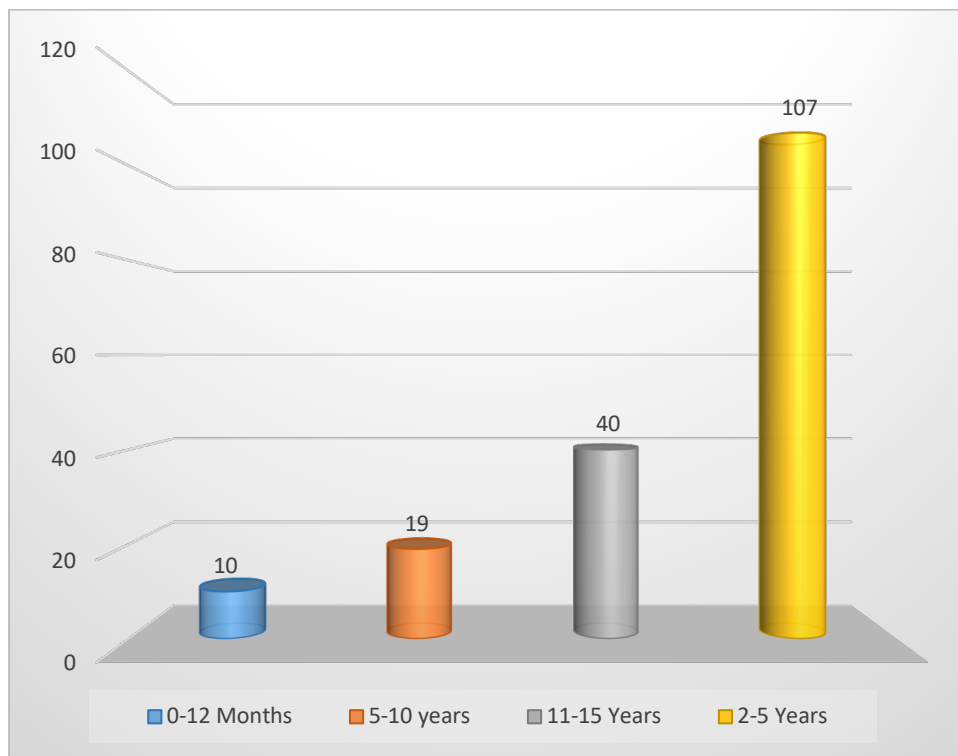
### 5.2.3 Respondents by Academic Qualification

The study sought to establish the academic or professional credentials of respondents. Figure 9 below illustrates the distribution of respondents' academic or professional qualifications. Additionally, the research established job titles and departments in connection with the years spent by respondents in various roles within selected Namibian MT companies. The majority of respondents (62%) held a Bachelor of Arts degree, followed by those with a master's degree (22%), and those with a post-secondary credential (1.15%), as shown in Figure 9.



**Figure 9 Respondents per qualifications(n=176)**

According to this study, 68 (39.1%) had a bachelor's honours degree, 39 (22.41%) had a bachelor's degree, 38 (22%) had a master's degree, 12 (7%) had a technical electrical certificate, 11 (6%) had a diploma, and the two lowest (1.4%) had a grade 12 education. The most experienced among senior managers had 32 years of experience and the lowest was four years and six months. The highest quantity of education and more work experience was associated with the ability to comprehend the questions on the survey questionnaires and interviews and qualify in their specific fields. Furthermore, respondents to the quantitative part were asked to indicate the number of years they had worked for MT companies. Figure 10 below presents the period spent by survey respondents in selected MT companies' employment.



**Figure 10 Respondents on years spent on the job (n=176)**

### 5.3 Data Presentation

This study was grounded in MM research using convergent design. In convergent research designs, data converging refers to the process of integrating or blending quantitative and qualitative findings into a single study (Creswell and Plano Clark 2018). This section presents data based on the researcher's progression through data analysis and identification of patterns and themes. The objective was to reach a reasonable scientific conclusion regarding the implementation of organisational KMS in selected MT companies in Namibia. The Statistical Package for Social Sciences (SPSS) was used to analyse quantitative data. For example, simple linear regression in data processing, capturing, and analysis was used. Descriptive statistics such as univariate graphs, frequencies, and percentages, depicted in histograms and bar plots, were also used. The researcher transcribed the voice recordings after each interview session. The Google Word Cloud Generator was used to find the most common themes in transcribed recordings and direct quotes.

The presentation of the data is based on the objectives outlined in Chapter 1 which are to determine the strategies implemented for organisational KMS and organisational KMS infrastructure; assess the level of support by senior managers

towards organisational KMS; assess the perception of employees towards organisational KMS; and establish organisational KMS enablers in MT companies in Namibia. Where applicable, data from the questionnaires, documents and interviews were incorporated to derive plausible conclusions.

During document analysis and interviews the researcher coded and developed main themes and patterns, sub-themes and categories, which emerged as an approach to presenting the findings as presented in Table 7 using Google World Cloud influenced by the literature review and conceptual framework. The value of each word is indicated by the size and colour of the typeface. Therefore, six key themes were developed from the collected data. These themes were aligned to the research problem, objectives and research questions as well as literature to guide the present study. These themes were OK, KM, KMS strategies, KMS infrastructure, support from senior managers, and how employees felt about organisational KMS that had been put in place.

**Table 7: Themes, sub-themes and categories of OK, KM and KMS**

Main themes	Sub-themes	Categories
<p><b><u>Theme 1</u></b> <b>Organisational Knowledge</b></p>	<p><b>1. Tacit knowledge</b></p>	<ul style="list-style-type: none"> <li>- knowledge in the mind personal experience</li> <li>- solving system problems</li> <li>- synthesis</li> <li>- experience,</li> <li>- skills and</li> <li>- expertise</li> </ul>
		<ul style="list-style-type: none"> <li>- information that enables action</li> <li>- Analysis of data and information</li> </ul>
		<ul style="list-style-type: none"> <li>- specialised knowledge</li> <li>- fault detection on systems</li> <li>- learning and collaboration</li> </ul>
		<ul style="list-style-type: none"> <li>- socially constructed</li> <li>- groups participation</li> </ul>

		<ul style="list-style-type: none"> <li>- dialogue</li> <li>- collaboration</li> </ul>
	<b>2. Explicit Knowledge</b>	<ul style="list-style-type: none"> <li>- Manuals (electronic and hard copies)</li> <li>- Digital data\spreadsheet</li> <li>- policies</li> </ul>
		<ul style="list-style-type: none"> <li>- strategies</li> <li>- annual work plans</li> <li>- technologies</li> </ul>
<b>Theme 2</b> Organisational KM	1. Creation	<ul style="list-style-type: none"> <li>- ICT</li> <li>- OK codified into databases and repositories</li> <li>- simulations or demonstrations</li> <li>- social networks; lessons learned</li> <li>- employee perception</li> <li>- online OK preservation</li> <li>- Interviewing of experts</li> </ul>
	2. Transfer	<ul style="list-style-type: none"> <li>- Interviewing of experts</li> <li>- Experimental learning</li> <li>- succession planning and innovation</li> <li>- ICT</li> <li>- OK codified into databases and repositories</li> <li>- simulations or demonstrations</li> <li>- employee perception</li> <li>- social networks;</li> <li>- lessons learned</li> </ul>
	3. Identification	<ul style="list-style-type: none"> <li>- ICT</li> <li>- electronic identification of OK</li> <li>- expert's locator</li> </ul>



		<ul style="list-style-type: none"> <li>- online socialisation</li> <li>- employee perception</li> <li>- management support</li> <li>- web content mining</li> <li>- accounts and repositories</li> <li>- semantic web application</li> <li>- semantic web expert systems</li> </ul>
	4. storage	<ul style="list-style-type: none"> <li>- electronic databases,</li> <li>- warehouses,</li> <li>- archives,</li> <li>- filing systems,</li> <li>- manuals,</li> <li>- reports,</li> </ul>
	5. sharing	<ul style="list-style-type: none"> <li>- ICT collaborative tools</li> <li>- peer assistance,</li> <li>- learning assessments,</li> <li>- after-action reviews,</li> <li>- document libraries,</li> <li>- knowledge bases (wikis),</li> <li>- blogs, voice and voice, OK clusters,</li> <li>- expert locator,</li> <li>- collaborative virtual workspaces, OK portal,</li> <li>- video-sharing</li> <li>- emails;</li> <li>- communications</li> </ul>
	6. Classification	<ul style="list-style-type: none"> <li>- Online classification map</li> <li>- online OK Map</li> </ul>
<b>Theme 3</b> Organisational knowledge	personalisation	<ul style="list-style-type: none"> <li>- knowledge management policy</li> <li>- ICT</li> </ul>

<p>management systems strategies</p>		<ul style="list-style-type: none"> <li>- Employee involvement in planning,</li> <li>- Training,</li> <li>- Communication tools</li> <li>- Methods of OK sharing</li> <li>- Community of practice</li> <li>- Employee attitude, behaviour</li> <li>- motivation, benefits, and resources</li> <li>- management support,</li> <li>- Training,</li> </ul>
	<p>Codification</p>	<ul style="list-style-type: none"> <li>- knowledge management policy</li> <li>- ICT</li> <li>- Community of practice</li> <li>- Document management systems,</li> <li>- Training,</li> <li>- Exposure to KMS</li> <li>- Online capture OK</li> <li>- Online OK storage</li> <li>- Communication too motivation, benefits, and resources</li> <li>- Management support</li> <li>- Cloud storage</li> <li>- Employee attitude, behaviour</li> </ul>
<p><b><u>Theme 4</u></b> knowledge management systems infrastructure</p>	<p>KMS capabilities</p>	<ul style="list-style-type: none"> <li>- Groupware</li> <li>- web-based techniques,</li> <li>- Training,</li> <li>- Exposure to KMS</li> <li>- communications infrastructure</li> <li>- employees collaborate</li> <li>- accessibility of online explicit documents</li> </ul>

		<ul style="list-style-type: none"> <li>- storage repositories</li> <li>- channelling, handling and securing knowledge</li> <li>- intranet and internet accessibility and information</li> <li>- decision making systems</li> <li>- Content management systems</li> <li>- relationship management systems,</li> <li>- learning management systems,</li> <li>- employee and customer portal systems,</li> <li>- enablers such as technology, management and employees</li> </ul>
<p><b><u>Theme 5</u></b> Senior managers' support</p>	<p>strategies or methodologies employed</p>	<ul style="list-style-type: none"> <li>- management assistance,</li> <li>- Training,</li> <li>- infrastructure, management engagement into creation, sharing transfer, storage and use OK,</li> <li>- senior managers to improve KMS</li> <li>- ICT</li> <li>- learning management systems,</li> <li>- existing ICT policy</li> </ul>

		<ul style="list-style-type: none"> <li>- promote innovation and make use of knowledge via collaboration</li> <li>- online document management use</li> <li>- trust</li> <li>- encourage employees</li> <li>- interest in implemented organisational KMS</li> </ul>
<p><b>Theme 6</b> Perception of employees towards KMS</p>	<p>perceptions of employees using KMS</p>	<ul style="list-style-type: none"> <li>- awareness of the importance of KMS</li> <li>- willing to use organisational KMS technologies</li> <li>- encourage organisational knowledge sharing,</li> <li>- workers' attitudes toward knowledge sharing, transfer, creation and storage,</li> <li>- senior managers observations of the attitudes of employees towards the use of KMS,</li> <li>- willingness to use organisational KMS,</li> <li>- incentive and reward systems,</li> <li>- participation in (online) discussions</li> <li>- access to OK from informal and formal sources,</li> <li>- communication abilities using the system,</li> <li>- Trust, and lack of trust</li> </ul>

		<ul style="list-style-type: none"> <li>- Negative and positive attitude and behaviour,</li> <li>- Training</li> </ul>
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#### 5.4 Understanding of Organisational Knowledge Management

Findings from the quantitative survey and interviews revealed that OK in selected MT companies in Namibia centres on tacit and explicit OK. A combined 137 (77.8%) strongly agreed and agreed that OK was a part of their competitive advantage, compared to 39 (22.2%) who strongly disagreed and disagreed. Most respondents and participants in selected MT companies in Namibia seemed to provide the same phrases in most of their interpretations of OK and KM. Some of the responses mentioned by respondents and participants on the subject of what OK is, amongst others, were that "OK is in the mind of employees, learned, meaning, gathered, solving problems, possession, experience, skills and used within MT companies". The Google word cloud generator themes that were used to describe OK are shown in Figure 11.

The following selected responses were received: Participant 1 defined OK as *"the information in the mind, gained and utilised inside my organisation, including skills, experience, and simulation." What I know is the result of a collaboration of work experience, teamwork, and field-specific education."*

It shows that Participant 1 agreed with Participant 2, who defined OK as *"familiarity with a person's knowledge obtained via practice and instruction."* In addition, participant 6 defined OK as *"the knowledge and abilities a person or employee possesses that enable him or her to fulfil organisational responsibilities, such as promptly addressing system faults."*

It is also essential to note that the finding showed that OK has a specialised context. In light of this, Participant 3 indicated that OK is *"specialised knowledge of electronic installation in relation to various installed systems pertaining to fault detection in relation to particular systems in order to carry out the necessary tasks in the correct manner."* In the same way, Participant 4 said that OK is *"the basic talent that helps me do my job well, solve problems at work, and participate in group activities."*



**Figure 11: Organisational knowledge term**

Given that the function of OK is to acquire and maintain a learning experience to guarantee that its operations consistently produce the required results, objectives and purpose, Participant 5 stated that knowledge is *"what I have acquired, my specialised knowledge (experience), or what my co-workers know about my profession in terms of effectively completing assigned responsibilities inside my organisation."*

Participant 7 stated that, *"It is what I know about marketing and sales. For example, what does the information in a database or the sales department's monthly spreadsheet statistics indicate? I imply that I should be able to comprehend that data as an employee. This is an element of marketing and sales knowledge"*.

In addition, OK was taken to represent documented experience acquired over time through education or practical experience. Participant 8 noted that OK *"relates to 17 years of experience that I gained and reports I produced, abilities in my professional environment, as well as knowledge and personal experience."* Similarly, Participant 9 remarked that *"skills acquired by employees throughout the course of their employment or performance of their tasks may be documented in the logistic handbook or department of this organisation."* In light of above, Participant 10 elaborated further that *"This is what I or my colleagues know about electronic engineering, which enables us to construct electronic circuits and devices employing nonlinear and active electrical components and which is stored in my memory. The majority of the time, we utilise either online or printed guides. It aids."* Participant 11 had little to contribute and defined OK as *"knowledge that facilitates action through facts and statistics. An example of action would be the making of a choice"*.

Qualitative participants were asked to share their understanding of organisational KM. When asked to define organisational KM, senior managers described it as the process of capturing, distribution and managing OK, document management systems and online information discussions within departments and regional offices about project reports that are useful for marketing, finance, logistics, and engineering. Participants in selected MT companies in Namibia showed a good understanding of organisational KM. The Google word cloud concepts used to describe organisational KM are shown in Figure 12.



**Figure 12: Organisational knowledge management terms**

Findings showed an appreciation of the significance of the connection between organisational KM and technology. The following selected responses were received. In a technology era, Participant 6 highlighted the significance of *"administration," particularly the storing of electronic or paper records, including defect orders for future reference.* Participant 5 agreed with participant 6 and said, *"Knowledge management is the technology that makes it easy to save and retrieve online either financial data or any other reports through a well-developed IT infrastructure."*

In support that organisational KM is efficient management of OK, Participant 3 highlighted that *"knowledge management is the effective administration of information and resources inside our organisation, which is of the highest significance"*. In accord with Participant 3, Participant 7 emphasised the significance of technology in relation to preservation and stated that *"management of different forms of information inside*

*the organisation ensures that information is conserved so that new and old employees may access it."*

Similarly, Participant 9 stated, *"I view information or knowledge management as an efficient process in which personnel must be networked and able to receive and share documents or forecasts utilising technology."* This perspective appears to be in agreement with Participant 11, who claimed that knowledge management entails *"the acquisition and distribution of information."* *I believe that these two key processes play important roles at the core of knowledge management".*

In light of the above, document analysis indicated that there were no policies and guidelines promoting or raising awareness among Namibia's MT companies regarding the relevance and value of organisational KMS for KM practice.

#### **5.4.1 KM Strategies for Knowledge Management Systems**

The first objective of this study was to determine the strategies used to implement organisational KMS in selected MT companies in Namibia. This objective had a single question-driven to understand the strategies employed that guide KM initiative and, in particular, KMS in MT companies in Namibia.

The question was posed to quantitative respondents and qualitative participants to understand policies and legal frameworks for organisational KMS strategies within Namibia's MT companies. Qualitative participants were asked if MT companies in Namibia have a knowledge management policy. All qualitative participants show that selected MT companies do not have organisational KM strategy. The following selected responses were received:

Participant 1 remarked, *"There is no KMS strategy, but we have thoughts on how to apply it to information systems, especially."* In agreement with Participant 1, Participant 2 stated, *"I am unaware of any KM policy, but if one does exist, I believe it should be included in our ICT policy."* Please find out from them. Similarly, participants 7, 8, and 11 answered that their organisation lacked an organisational KMS strategy in light of the above responses. Participant 7 said *"We don't have it; I haven't seen it elsewhere* and Participant 8 remarked, *"I can assure you that there is no knowledge*

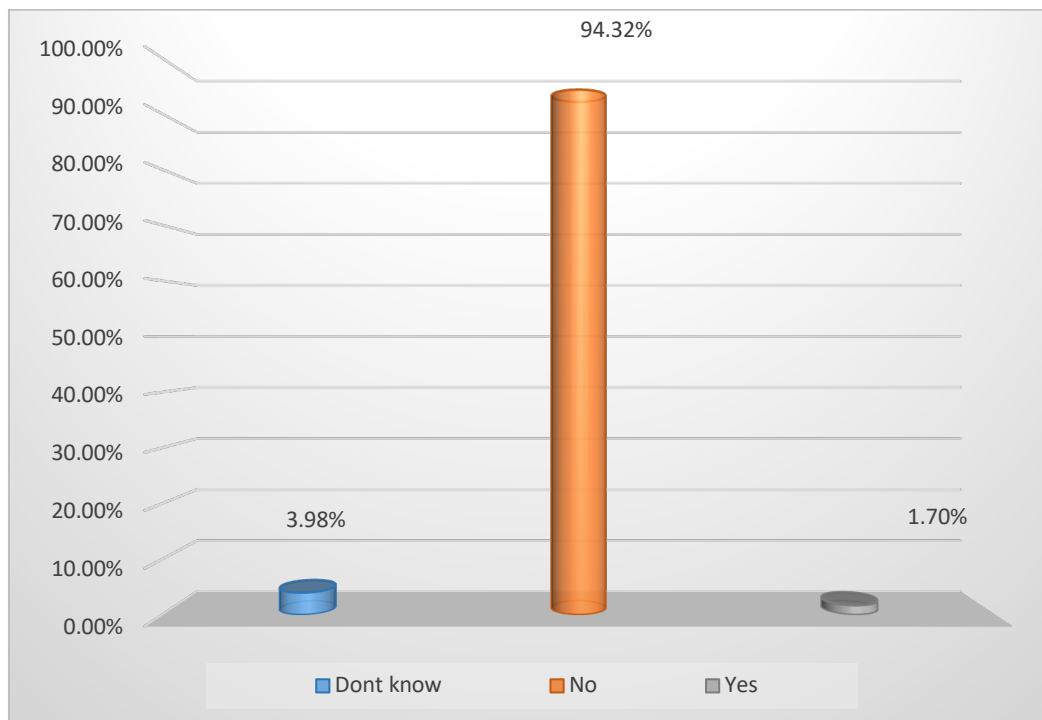


*management plan in this organisation.” Participant 11 remarked that “Our knowledge management strategy is not yet fully developed, but let me say that we have in place methods of document management.”*

In light of uncertainty or lack of availability of organisational KM strategy in selected MT companies in Namibia, Participant 3 pointed out that *"I'm not sure if we have a knowledge management system or KM strategy. However, I want to believe that in our ICT policy, there are obviously some guidelines on how to manage information or data"*. In support of Participant 3, Participant 4 said that *"Our information technology policy I believe should have a component of an information systems programme that is focused on improving technical needs for data management and measuring and improving the information management system."*

Participant 5 noted, *"Our organisation has begun establishing techniques to not only collect information but also assure the capture of information while others are living in the organisation and storing it in databases."* On the other hand, Participant 6 said, *"We have a knowledge management policy, but it is currently being updated to match new techniques of information sharing in our organisation. However, we do not have a department or role dedicated to knowledge management.* No participants or respondents shared a copy of the KM policy in response to emails or phone calls.

However, according to the quantitative respondents, 166 respondents (94.3%) indicated that their organisation did not have a strategy for organisational KMS or KM, three respondents (1.7%) indicated that they had a strategy, and seven respondents (3.9%) indicated that they were unsure whether the strategy was available. None of the quantitative respondents had shared the organisation's KMS policy or plan, notably in the field of KM, in response to a follow-up question requesting a copy of the KM policy or strategy document. In Figure 13, respondents indicated their company had a knowledge management policy or strategy.



**Figure 13 Strategy on organisational KMS (n=176)**

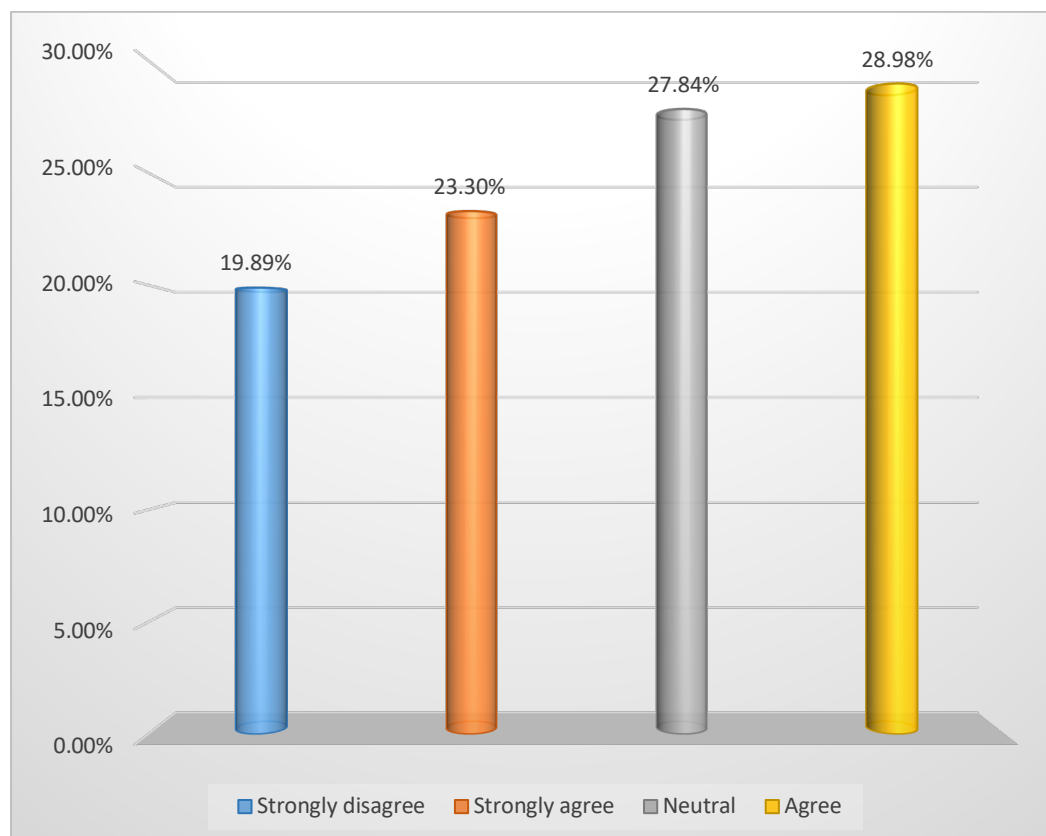
A total to one hundred and forty (79.5%) quantitative respondents indicated that MT companies do not have a precise organisational KM department, positions and strategy. Quantitative findings further indicated that 75 (42.6%) respondents between the ages of 22 and 35 with between two and five years of work experience believed that collaborative corporate issues were connected to organisational knowledge management strategy, while 58 (33 %) of those with 11–15 years of work experience believed that organisational KMS and KM practices were not well defined due to a lack of awareness of their outcomes. In light of that Participant 8 held the view that organisational KM practices ought to be championed by the human resources department. In his own words, Participant 8 stated that *“You may need to interview them as well to find out, or maybe they do not know about knowledge management, which is why we do not have it.”*

Despite the fact that tacit and explicit OK, in particular, organisational KMS for KM, was found to be crucial for performing job-related activities in selected MT companies in Namibia. Document analysis revealed that Namibian MT companies did not have an organisational KMS strategy. Additionally, selected MT companies' ICT policies made no mention of organisational KMS for KM practice.

## 5.4.2 Knowledge Management Systems Infrastructure

The second objective of this study was to determine organisational knowledge management systems infrastructure implemented by selected MT companies in Namibia. This objective had a single question: What infrastructure is essential for organisational KMS in MT companies in Namibia?

In order to establish the type of technology infrastructure used for organisational KMS, quantitative respondents were asked if selected MT companies had the infrastructure used for organisational KMS. A combined 91 (51.7%) of the respondents strongly agreed and agreed that MT companies had the necessary communications infrastructure that could be used for organisational KMS, while 49 (27.8%) were neutral and 35 (19.9%) strongly disagreed, as outlined in Figure 14.



**Figure 14 KMS necessary infrastructure**

Quantitative respondents were further asked whether using organisational KMS infrastructure, employees collaborate with other departments and employees around the organisation. A combined 22 (16.4%) strongly disagreed and disagreed that they did not use organisational KMS infrastructure to collaborate with other departments and employees around the organisation, while 107 (81.1%) strongly agreed and agreed that they used organisational KMS infrastructure to collaborate within their and



way we could miss it". Participant 3 mentioned that *"We have our own intranet model with an online share-net. YouTube is also used to share information or learn from it."*

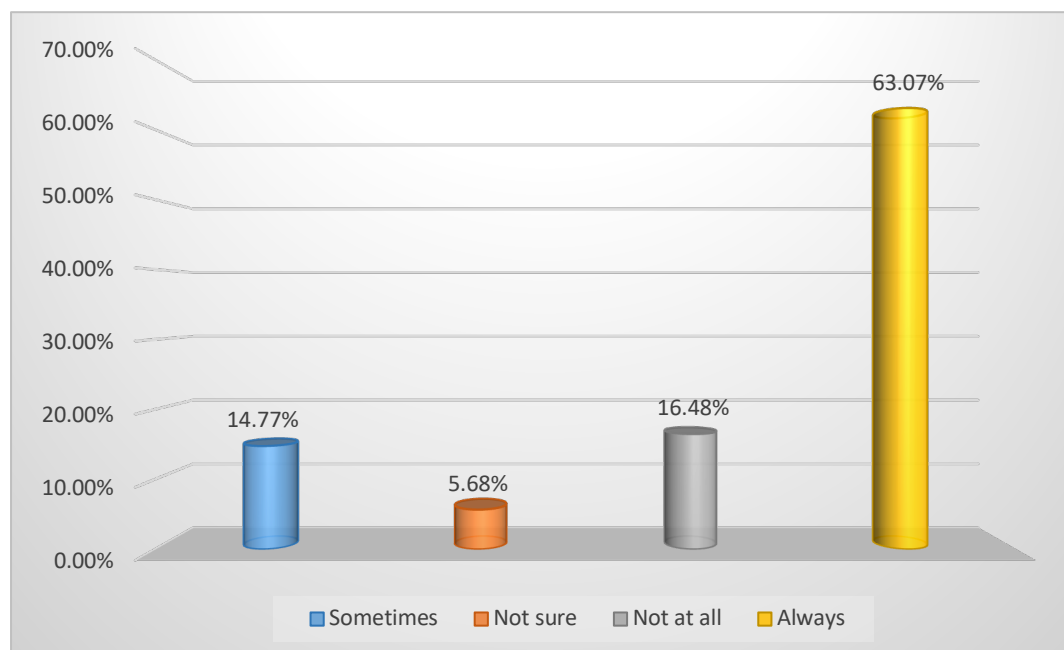
It was further noted by Participant 11 that infrastructure that took care of organisational KM was important. Participant 11 said that *"After reading about your research topic, the first thing I did was check our intranet, the key document centre for internet information and YouTube. I discovered a wealth of information (or what you call knowledge), but it needs restructuring. YouTube helped me to understand more organisational knowledge management and systems."*

Similarly, Participant 10 said that *"I want to state that recently, the majority of managerial decisions in our organisation are discussed online, and these decisions are kept online per subdivision and specialty with specific people who have access to them."* In support of organisational KMS infrastructure in relation to accessing OK online, Participant 9 emphasised that *"We do not have difficulty obtaining data because we create data per department or specialty. For example, for advertisements and marketing efforts or for IT operations, based on available and valid data."* Participant 8 added another dimension by mentioning that *"We look for information by entering our requests into an online search window, which returns results quickly."*

Qualitative participants were further probed on organisational KMS technologies. Qualitative findings indicate further that selected MT companies utilised a variety of technologies to support organisational KMS, including customer relationship management systems, learning management systems, customer and employee portal systems and document management systems.

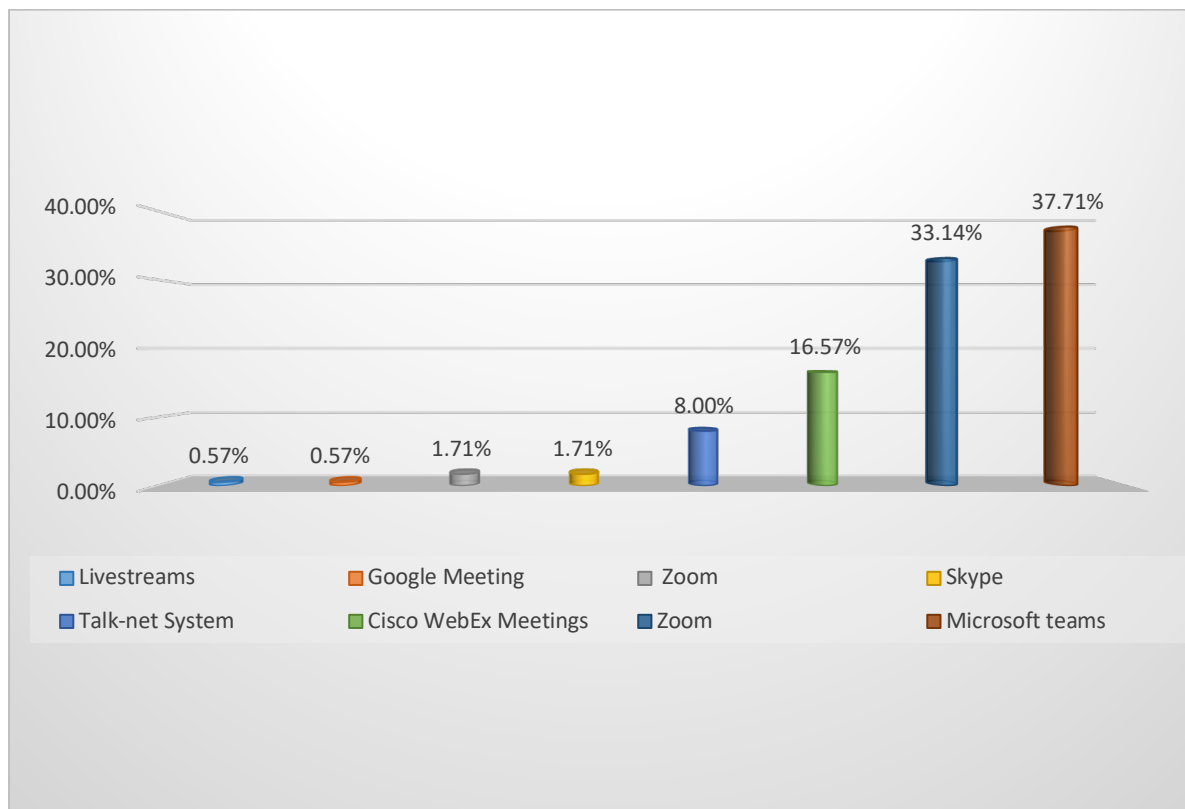
The selected findings showed that selected MT companies made use of electronic records management systems. Participant 5 said that *"Information or reports are stored in the online cloud, and we have a backup saver for this type of information."* However, Participant 11 lamented that *"But you can still find that others still prefer paper, but most of the time we scan them (documents) and digitalize them for easy accessibility. It's a process that takes a little time to achieve in the organisation. In relation to your questions, I think it's important to have an information or knowledge creation and storage policy for a successful organisational KM."*

Quantitative respondents were asked to indicate the extent to which these tools were used for effective knowledge management systems in their organisation. One hundred and twenty-six (71.6%) of the respondents indicated that email was always used as a tool for effective organisational KMS, while 28 (15.9%) indicated that email was used only occasionally and 49 (27.8%) indicated that they were unsure whether email was used as an organisational KMS tool in MT companies in Namibia. Similarly, 111 (63.1%) respondents said that teleconferencing technologies such as Zoom, Google Hangouts, True-Conference Online, Microsoft Teams, Skype and YouTube Live were utilised as organisational KMS solutions for knowledge management practices. A total of 39 (22.2%) of the respondents were unsure if MT companies in Namibia utilised them as organisational KMS tools for KM processes. Figure 16 shows that teleconferencing technologies are used in selected MT companies in Namibia.



**Figure 16 Teleconferencing technologies (n=176)**

In light of the quantitative findings above, the qualitative findings showed the following facilitation techniques for KMS: Zoom, Microsoft Teams, Skype, Talk-net system, Livestreams, Google Meetings, and Cisco WebEx Meetings were used as organisational KMS solutions for knowledge management processes by selected MT companies. Participant 7 highlighted the organisational KMS solutions utilised by several MT organisations, adding, "In the midst of the COVID-19 pandemic, who are we without communication tools such as Zoom, Microsoft Teams and Skype, to name a few. These are essential tools for, among other things, arranging or attending conferences, meetings, and carrying out our duties." Figure 17 shows the online tools that some Namibian MT companies used to communicate and work together.



**Figure 17: Tools used for online meetings (n=176)**

During further probing, it was discovered that email and WhatsApp were the most frequently used communication channels for receiving papers and other information. Participant 4 emphasised that *"I can view past and current emails from any location as long as I have a connection that preserves access to emails. For me, it works like a database, and we use WhatsApp groups to quickly share information"*.

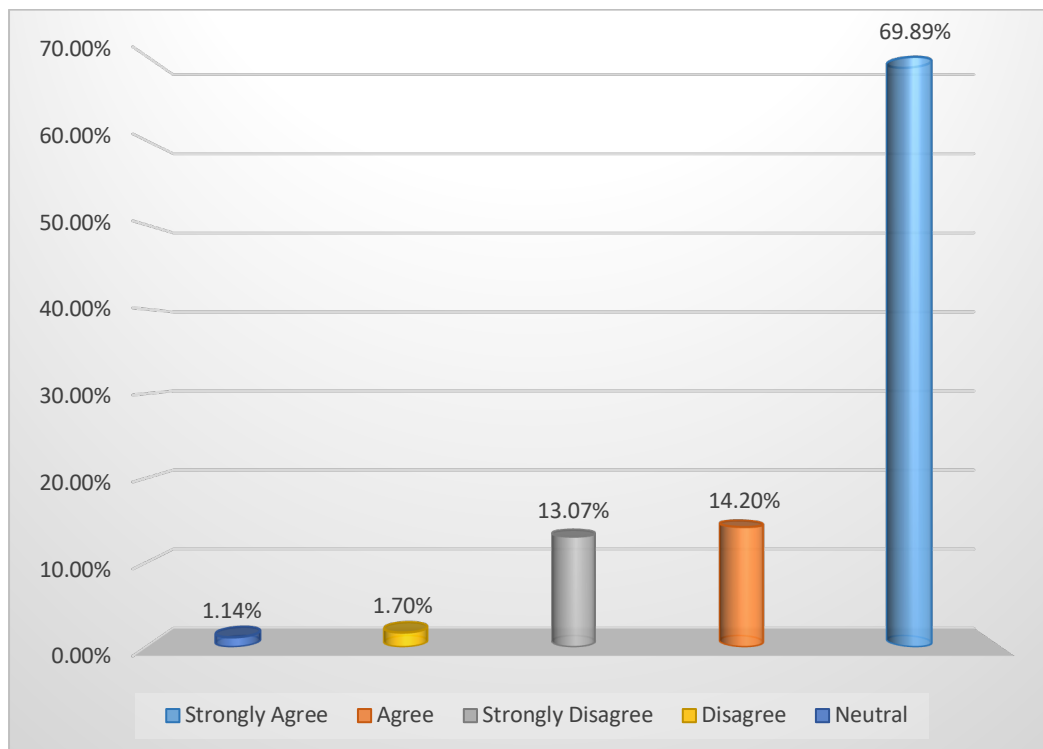
Quantitative respondents' and qualitative participants' responses indicated that e-Learning or learning management systems are critical for laying the groundwork for an organisation's KMS for practice. The majority of 146 (82.9%) strongly agreed and agreed that e-learning tools were important tools for organisational KMS for KM practice, while a combination of 30 (17%) was not sure and sometimes disagreed about the importance of e-learning to organisational KMS for KM practice. With this rapid shift away from the office in many parts of the world, organisations are wondering whether the adoption of online learning will last post-COVID-19 pandemic and how such a shift would impact organisational learning. Participant 8 stated, *"Because of the COVID-19 pandemic that has pushed us to work from home, online learning, or e-learning, enables us to construct customised training courses and lessons that take place while at home."*

The researcher probed qualitative participants on the importance and occasional use of e-learning during the COVID-19 pandemic by selected MT companies. Qualitative findings showed that e-learning happened more frequently than before when external consultants were recruited to train employees, and online face-to-face internal employee training also took place more frequently. In light of that, Participant 8 said, *"It has turned into the new normal that we have accepted to learn and train ourselves online."* Corresponding to qualitative results, quantitative respondents indicated that 120 (71%) of all face-to-face learning occurs in MT companies in Namibia, whereas 56 (29%) disagreed that all face-to-face learning occurs in MT companies' boardrooms. Emphasising on the importance of e-learning, Participant 7 further stated that *"Learning or training face-to-face is very important for us, in particular when dealing with system installation training as well as understanding fault findings on an installed system."* However, follow-up questions from quantitative respondents indicated that there are limited guidelines or instructions on how to use e-learning 125 (73.4%) apart from infrastructure capable of channelling, managing, and safeguarding information inside an organisation and providing the foundation for a knowledge management system. The document analysis ICT revealed that selected MT companies in Namibia had the necessary technical infrastructure to support knowledge management practices.

#### **5.4.3 Senior Managers' Support for KMS**

In reference to the third objective of the study, this section sought to understand senior managers' support for organisational knowledge management systems. This objective had a single question: What are the strategies or methodologies employed by senior managers to support KMS implementation in MT companies in Namibia? Quantitative respondents were asked to identify the kind of management assistance available for knowledge management system improvement. Quantitative findings revealed that the information system infrastructure is used for knowledge creation, sharing, transfer, storage, and utilisation is accessible in select MT companies. A total of 148 (84.1%) quantitative respondents strongly agreed and agreed that management in selected MT companies supported the improvement of knowledge management systems by providing the necessary infrastructure, while 26 (14.7%) respondents strongly disagreed and disagreed, and 2 (1.14%) respondents were neutral. The above results are shown below in Figure 18.





**Figure 18: Management support on infrastructure(n=176)**

The ICT document analysis report showed that selected MT companies have invested in the required technical infrastructure to support knowledge management processes. Quantitative respondents indicate that 141 (80.1%) strongly agreed and agreed that investment in information management systems for effective knowledge sharing in selected MT companies. Findings further showed that central organisational repository including online report sharing and online meetings are good examples of senior management's valuable assistance and help for organisational KMS in selected MT companies in Namibia. In support of quantitative findings, qualitative findings showed further that the importance of the provision of organisational KMS enabling technology for KM practice. Figure 19 presents Google word cloud concepts used to describe organisational KMS technology.



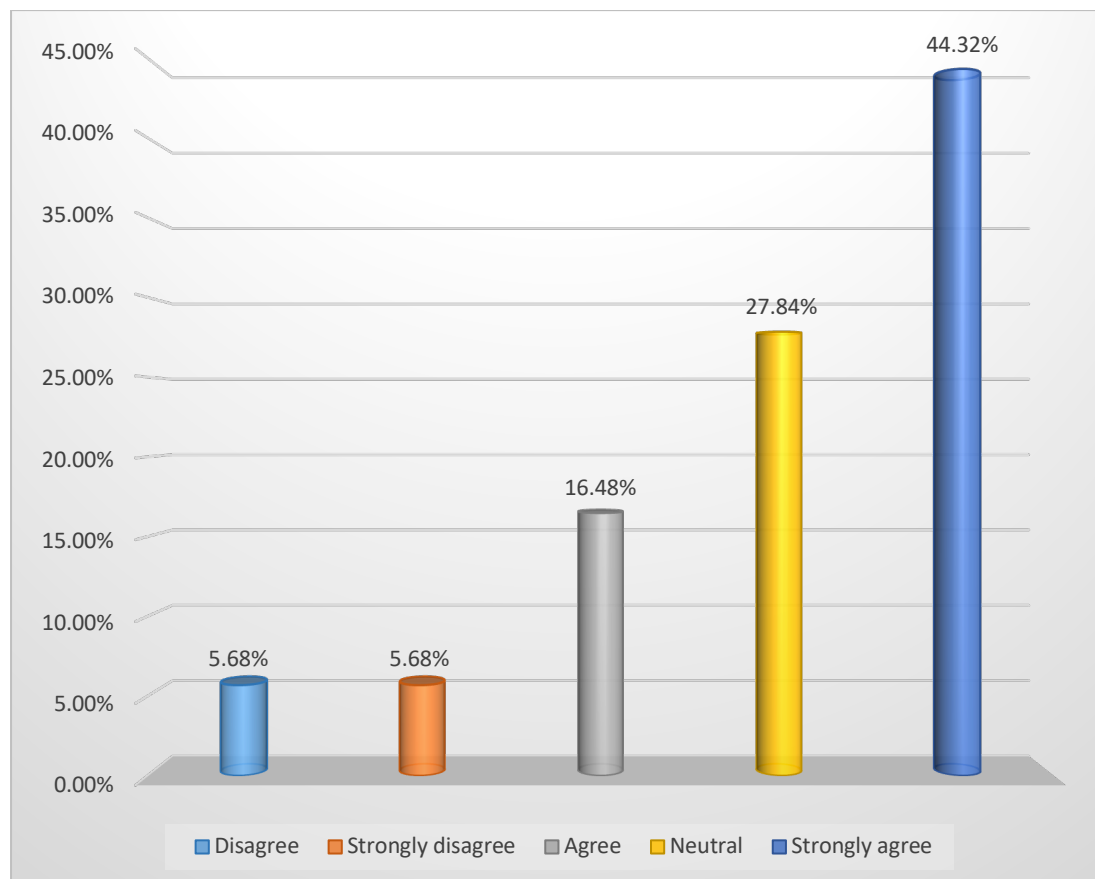
**Figure 19: Knowledge management technology**

The following selected responses deserve special mention: Participant 5 claimed that *"available or cutting-edge technologies enable us to streamline our ideas, link our knowledge, and enhance our continuous learning."* In agreement, Participant 2 stated that *"Our current information systems allow experienced workers to communicate their knowledge online in discussion or in writing, which may be recorded online for novice staff to view on our talk-net system."* Participant 8 emphasised that *"technology is an important entity in our company. Our organisation's activities rely heavily on information technology. Technology may be inventive enough since it delivers new changes, such as computers, which play a vital part in understanding what IT has to offer."*

Noting the significance of technology as a tool in the control of organisational knowledge management in order to achieve organisational goals, Participant 5 mentioned that *"technology information communication is essential for us (our spine) in managing data storage and sharing ideas. It's a tool we utilise most that helps our staff improve their knowledge and skills."* In support of Participant 5, Participant 8 stated the following: *"High-tech tools are seen as accelerators and standard methods of organisational and documentation in our organisation. The use of technology as a means to support documentation, among other things, is essential and unquestionable in our company."*

According to a combined sample of quantitative respondents, (127) 73.2% indicated that management supported improving organisational KMS for knowledge creation,

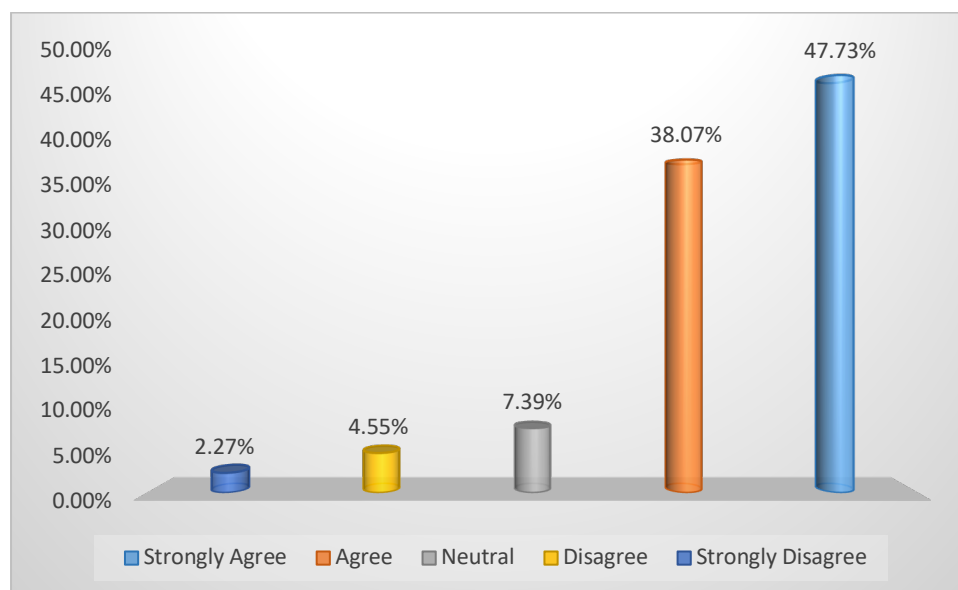
sharing, transfer, storage, and use. In comparison, 49 (27.8%) were neutral, and 20 (11.4%) strongly disagreed or disagreed. The above results are shown below in Figure 20. Additionally, quantitative respondents 133 (75.6%) believed that senior management support for KMS ought to include the development of an organisational KMS strategy or reviewing the organisation's existing ICT policy to address organisational KMS for KM practices, in comparison, 43 (24.4%).



**Figure 20: Improvement of organisational KMS(n=176)**

Quantitative respondents were further asked if senior management was likely to ease access to information and encourage innovation through implemented knowledge management systems. The following quantitative responses 137 (77.8%) showed that senior management was most likely to facilitate access to information, promote innovation, and make use of knowledge via collaboration through established connectivity technology tools in place, compared to 39 respondents (22.2%) who indicated senior management was not likely to facilitate access to information, promote innovation via collaboration. Furthermore, 88 (50%) of quantitative respondents stated that their senior managers are committed to supporting an online learning environment

in selected MT companies in Namibia. In response to a follow-up question, 75 (42.6%) quantitative respondents indicated that in support of the process management uses online document management, in particular, Portable Document Format (PDF), videos and decision-making systems in conjunction with organisational KMS for KM practice, while 63 (35.7%) quantitative respondents were unsure of the best practices for maximising the effectiveness of an information system. According to a combined sample of quantitative respondents, 151(86%) strongly agreed and agreed that use of organisational KMS encourage teamwork, while 12 (16%) strongly disagreed and 13 (7.4%) were neutral. The above results are shown below in Figure 21.



**Figure 21: KMS Encourage Teamwork (n=176)**

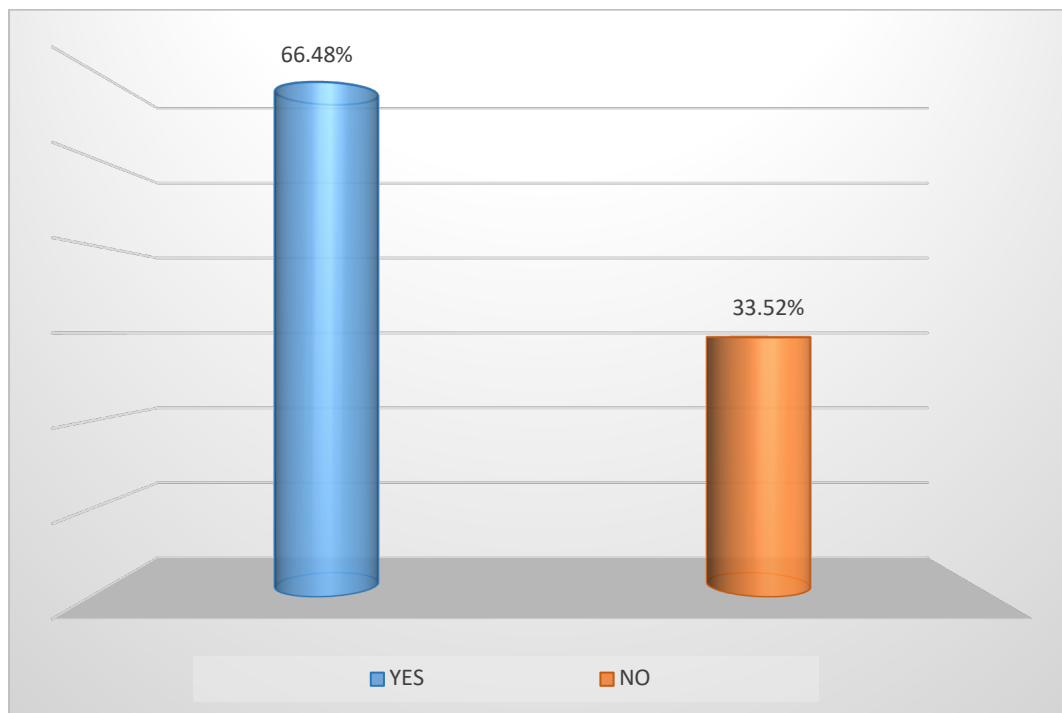
Furthermore, qualitative findings show that employees are aware of the importance of proactively managing knowledge assets using the available organisational KMS tools. Participant 8 emphasised that *“Accessibility of internet, intranet, documents or PDFs enable easy interaction and linkage with a number of file types. For example, the annotations generated in our PDF tagging programme are immediately connected in an organisation's dataset.”*

Furthermore, qualitative participants were asked to describe the current level of collaboration within their departments in terms of using organisational KMS. The following selected responses were received. Commenting on the level of collaboration in selected MT companies' online platforms, Participant 9 said that *“We have virtual teams, with different people from different departments. As a result, virtual workers have mechanisms in place to minimize different types of workflow interruption. Periodic responses are indeed an effective instrument for evaluating workplace*

*performance and making appropriate amendments.” Participant 7 said, “Trust me, this organisation has a huge volume of data that is kept and organised utilising technology through semi-structuring and organizing content that is preserved in a number of diverse data forms.” In the same way, Participant 4 commented that “This Company will continue to exist on technology. Indeed, we supply the newest technologies to our organisation, in particular in Namibia. Hence, our adopted technology speaks to integrating issues of management of information with business processes and information systems as important elements. Furthermore, we continue to encourage employees to continuously use, share, reuse, and transfer data or information under our senior management commitment.”*

Highlighting the importance of investments in technology for organisational KM in selected MT companies. Participant 3 expressed that *“We have made significant investments in technology. They (employees) should have faith (or have shown faith, let me put it that way) in technology and save their data in databases so that others may utilize it to improve organisational involvement via improved processes and cost savings.”* Supporting Participant 3, Participant 5 commented that *“I would want to point out that increased online communication within our company translates into greater storage, communication skills, branding, service, and item value to customers. This means that we must seek proper groupings and finally retrieve the information. The advantages of our online statistics and information depend on how excellent information management is and looks like now, critical for our company.”*

Furthermore, quantitative respondents were asked to rate whether senior managers showed interest in the implementation of knowledge management systems. However, it is interesting to note that 117 (66.5%) stated that senior managers were of the view that senior managers showed no interest in implementing knowledge management systems, while 59 (33.5%) stated that managers were interested in implementing organisational KMS. Figure 21 shows employees' perspectives on whether senior managers are interested in the implementation of knowledge management systems in selected MT companies in Namibia.



**Figure 22: Senior managers' interest in KMS implementation (n=176)**

Furthermore, quantitative respondents were asked what knowledge creation, sharing and application policies and practices currently exist in selected MT companies in Namibia. The findings indicate that there were presently no knowledge management policies in place. However, the responses to the follow-up question indicated that MT companies regularly collect and control information and data, making them more accessible and manageable and organisational knowledge creation and sharing are both important. The findings underline the crucial role of groupware systems for virtual team collaboration, namely their ability to include video, audio and text into group conversations.

Qualitative participants, when asked if their organisation offered support, if any, in terms of knowledge management systems implementation and use, the following selected qualitative responses were received. Participant 6 acknowledged that *"During this COVID-19 epidemic where employees and managers are required to work from home, we need to adapt to a new technological infrastructure to lead our office workers and organisational operations. In that situation, the company provided us with the required technological devices and software in order to fulfil business duties and tasks from home. This, I feel, results in the establishment and distribution of information inside our department."*

Furthermore, commenting on how technology helps with document management, Participant 10 observed that *"We store and encourage sharing of documents either online or in hard copy. From this vantage point, we develop ideas and innovate after reading those files and discussions. I believe it has aided in the growth of this organisation and, in particular, improved our performance."* In light of that, Participant 4 indicated that *"Our available computer technology assists us in gaining access to various types of materials, communicating or participating in activities. We are an engaging organisation that believes in cutting-edge information and communication technology."*

Participants in qualitative studies were asked whether employees understood the significance of proactively managing knowledge assets with knowledge management systems. If so, how did they manifest this consciousness? Despite the encouragement from senior management for employees to manage and share information in an organisation's repository, this is not the case. Participants' responses on managing and sharing information showed that employees were divided over senior management's existing support for knowledge management assets and acceptable sharing procedures, particularly online, where certain reports are difficult to analyse and the material on wiki sites is not easily searchable. In highlighting the difficulties encountered, Participant 8 advised, *"I assumed we could utilise wikis or portals to collaborate and prevent communication problems. However, it has occasionally proven to be problematic. Occasionally, staff do not want to use them, and the material is weak, but it has improved since we began."* As a result of the influence of the specialised match on the allocation of interest in an online chat room, participants noted a lack of dedication on the part of employees in chosen MT organisations toward obtaining and depositing organisational knowledge, exchanging information and problem-solving.

However, 112 (63.6%) of quantitative respondents said that management had failed to involve them in initiatives to share OK and implement organisational KMS. The following selected qualitative responses were received. Participant 3 noted that *"Although workers exchanged information in online databases, they relied on individual dialogue that is, approaching the right person who possessed pertinent acquired information, which they would be working towards."* In addition to that, Participant 4 said that *"Without information or knowledge management, the*

*accessibility of pertinent, suitable expertise at the opportune moment is restricted or non-existent. So, in our organisation, information or data assets are deposited into the department database and website.*" However, participants ranging from 1 to 11 stated that they encouraged their staff to store, share, and transmit OK because the possible advantages of excellent information and knowledge management are too great to overlook.

Furthermore, qualitative participants were asked if organisational KMS affects employees' performance. Qualitative findings showed that senior management acknowledged that OK, in particular about the systems, was a key part of improving employee performance as employees required skills in the functions of the company. It was also discovered that one of the advantages of organisational KMS and technologies was broader, vibrant, more accessible collaboration and that systems knocked down communication barriers and allowed more employees of selected MT companies to accomplish most with knowledge assets. A combination of quantitative findings showed that 89 (50.7%) showed that organisational tacit and explicit knowledge, namely reports and staff abilities, were critical to improving their performance, whereas 61 (34.7%) strongly disagreed and disagreed that organisational KMS does not improve employee performance, while 26 (14.7%) were neutral. Additionally, qualitative findings showed that organisational knowledge development was important for employee knowledge sharing. Furthermore, qualitative findings showed that an effective knowledge management system also made it simpler for employees to access and reuse valuable information and knowledge throughout their organisations. Participant 5 said that *"It is critical to develop more information on corporate activities and to encourage employees to do so and exchange it with one another to improve their performance."*

It was also evident that employee trust was a problem in selected MT companies in Namibia. Senior managers acknowledged that there were limited issues with sharing tacit organisational knowledge, mainly that which catered to all employees in different departments. Qualitative findings also pointed out that motivation and reward systems in reference to the use or sharing of tacit organisational knowledge are not encouraged to the fullest. On follow-up questions, qualitative findings pointed to the lack of time, motivation, poor communication, lack of social interaction and organisational



workplace culture, such as a lack of rewards and recognition and a willingness to share tacit organisational knowledge.

The following selected qualitative responses were received. Participant 1 emphasised that, *"We probably need to properly address knowledge management concerns as it is important, as per this discussion, so that employees have access to information that will help them perform better.* However, noting an important aspect, Participant 3 indicated that they found that *the personality component is the most important when it comes to information exchange.*" In agreement with Participants 1 and 3, qualitative findings indicate that, despite indications of shortage mechanisms in selected MT companies for rewards and recognition, as well as a willingness to enable and facilitate organisational KM, these are important. For instance, Participant 5 lamented that *"There was no employee incentive programme in place. But we had it before. Maybe it's time to bring it back. But we encourage employees to put their ideas in the suggestion box, and even if they don't get paid for it, I always appreciate positive feedback from them."*

#### **5.4.4 Employees Perception on KMS**

This section explored the employees' perceptions towards organisational knowledge management systems in selected MT companies in Namibia. This objective had one main question: What are the perceptions of employees using KMS for managing knowledge at the MT companies in Namibia?

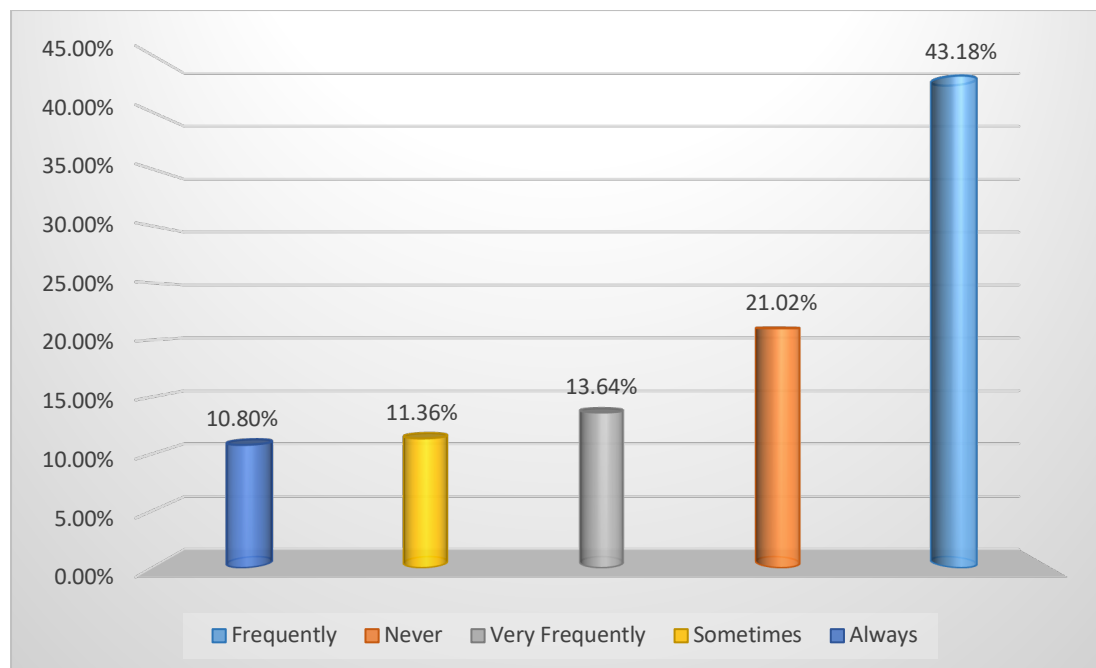
Quantitative findings show that well-implemented organisational KMS improves access to organisational knowledge. A combined 176 (100%) of quantitative respondents agreed or strongly agreed that they were willing to use organisational KMS technologies to access and share OK with colleagues. Furthermore, a total of 156 (88.6%) quantitative respondents agreed or strongly agreed that organisational KMS in selected MT companies in Namibia encouraged organisational knowledge sharing that could have a positive impact on workers' attitudes toward knowledge sharing, while 20 (11.4%) were neutral.

Quantitative findings showed that 135 (76.7%) of those between the ages of 22 and 35 said that they strongly agreed or agreed that organisational KMS ought to be designed to promote KM practice has an effect on employees' attitudes towards sharing knowledge. A total of eighty-nine (51%) of quantitative female respondents strongly agreed, compared to 47 (26.7%) males who agreed and 40 (22.7%) who had a neutral opinion on the quality of knowledge management systems in selected MT companies in Namibia. A total of 102 (58%) of female quantitative respondents believed that their supervisors' abilities to use the systems were excellent. Only thirty-one percent (30.1%) of males believed that their supervisors' ability to use the systems was average.

Qualitative participants were asked to share their observations of employee attitudes towards the use of knowledge management systems in their organisation. According to the qualitative findings, organisational KMS for knowledge management practices were constrained by employee attitudes, such as their willingness to use organisational KMS, particularly social networking, to benefit organisational knowledge management practices. In response to a follow-up question, qualitative respondents indicated issues such as required content on the systems, incentive and reward systems as issues that could possibly enable good perception towards organisational KMS.

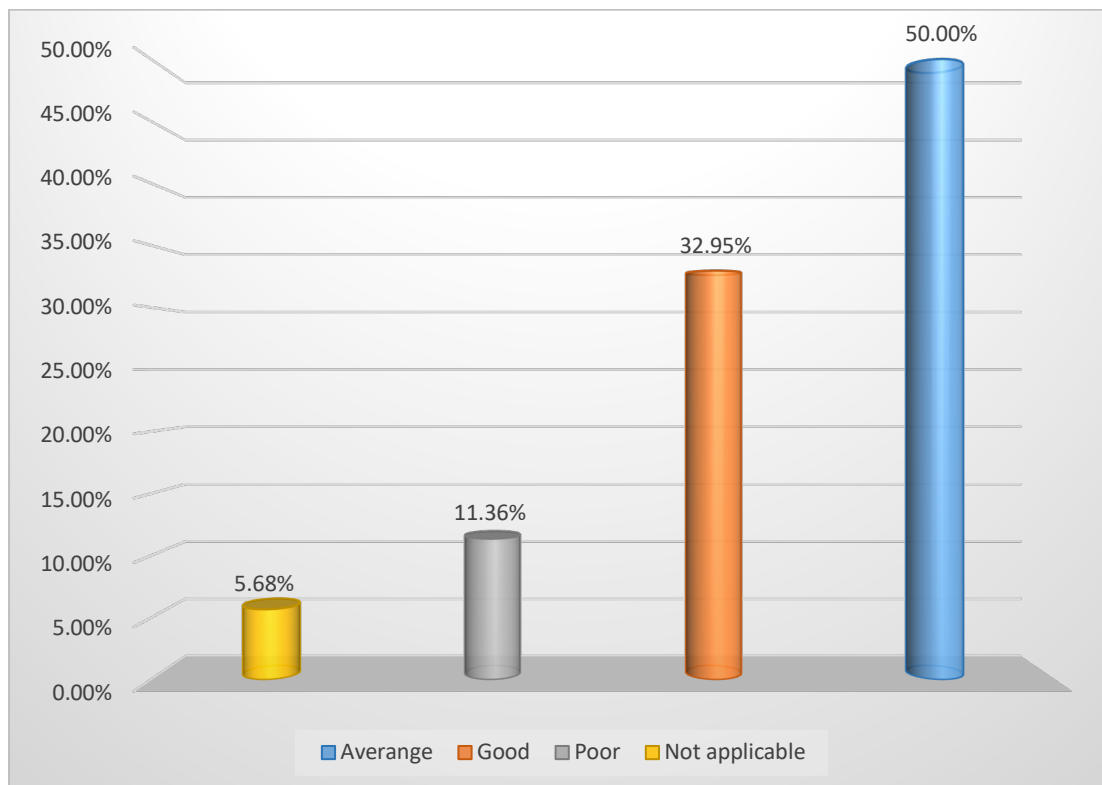
Participant 8 was said *"I observed that maybe employees needed to be rewarded for their unique ideas and competence."* Participant 7 said that *"Through online discussion, phone, or boardroom, we engage in collaborative corporate issue resolution, but I have noticed a lack of full participation in discussions."* Participant 4 said, *"We continually encourage employees to connect to networks through electronic databases in order to get information detailing technical system faults."* Similarly, Participant 11 did not have much to say about rewards that *"Organisational KMS enhances communication and collaboration."* Although quantitative respondents acknowledged that organisational KMS and KM practices were not well defined, seventy-three (41.7%) of the respondents were satisfied with the way they stored information in three distinct iCloud structures (databases) on organisational KMSs, whereas 46 (26.3%) said that they do so sometimes, 29 (16.6%) never, and 27 (15.4%) indicated extremely seldom. A total of 76 (43.1%) of questionnaire respondents usually utilise department databases to store conveniently available

information, whereas 37 (21%) never do. Their responses are shown in Figure 22 below.



**Figure 23: Utilisation of department databases (n=176)**

Among quantitative respondents, 97 (55.1%) indicated that implemented knowledge identification aids organisational KMS in accessing OK from formal sources such as repositories, internal and external experts, and community practices, while 39 (22.2%) strongly disagreed and disagreed, and 40 (22.7%) were neutral. Among quantitative respondents, 99 (56.3%) strongly agreed and agreed that trust was built to improve positive behaviour, promote network relations, foster good relationships and mitigate conflicts and costs associated with implemented organisational KMS, while 67 (38.1 percent) of survey participants strongly disagreed and disagreed with the statement. The quantitative respondents were asked to rate the perception of their supervisors' abilities to use the systems. This study discovered that results were almost evenly split; 88 (50%) were average, 58 (32.9%) were good, 20 (11.4%) were rated poor and 10 (5.7%) were not applicable. Their responses are shown below in Figure 23.



**Figure 24: Perception on supervisors' abilities to use the KMS (n=176)**

A combined 145 (82.3%) strongly agreed and agreed that a positive attitude towards the usage was very important for its success in selected MT companies. Furthermore, 78(44.4%) quantitative respondents their managers' average in terms of their supervisors' communication abilities using the system as good (38, or 21.5%), poor (30, or 17%) and a combined excellent and fair of 20 (11.4%). Lack of employee trust and organisational motivation to encourage OK were also cited as impediments to organisational KMS, particularly KM practice by quantitative and qualitative respondents. Despite the fact that employee attitude is recognised as a vital facilitator, the document analysis revealed that selected Namibian MT policies overlooked it as a critical enabler for organisational KMS in their ICT strategy. Their responses are shown below in Figure 24 on perception on KM technology.



#### 5.4.5 Challenges on Knowledge Management Systems

This section sought to establish organisational knowledge management systems enablers for selected MT companies in Namibia. This objective had one question: What are the barriers and enablers to organisational KMSs in MT companies in Namibia? Numerous organisational knowledge management obstacles were identified in both quantitative and qualitative data. The majority of senior managers expressed worry about workers' attitudes in relation to trust concerning organisational knowledge management using ICT equipment.

Qualitative data from eleven senior managers at selected MT companies indicated that more effort is required to improve work efficiency about ICT usage in particular retrieval and sharing of OK, especially those who have been in the system for a long period of time and those at the lowest rank levels in the company. Figure 26 demonstrates that the issues confronting the selected MT companies include, among others, elements of employee attitude complexity, a lack of appropriate system use, and corporate work culture, particularly unsupportive positive traits, belief systems, values, and desired skills, such as unsupportive everyday behaviours and strategic vision, as well as a lack of online interactions with senior management regarding OK sharing or creation.

The lack of online connections and participation, particularly in OK hoarding, was cited by participants as one of the difficulties for organisational KMS. The following qualitative responses were obtained. Participant 1 expressed worry with complete involvement in organisational KMS, stating, *"There is a great deal of flexibility in how each person is virtually involved in exchanging information, but not to the greatest extent."* Explaining further, Participant 3 stated that "One may comprehend why or how other employees may consider their experience sufficient for progress in the organisation, clueless to the fact that thoughts or ideas sharing are essential for new innovation". Participant 2 commented further that *"Not all workers feel confident or have the initiative to provide input to upper management's concerns. But we will keep at it until we've created a culture where sharing ideas and information freely is the norm rather than the exception. You will find that the level of expertise of a departing employee is not replaced."*

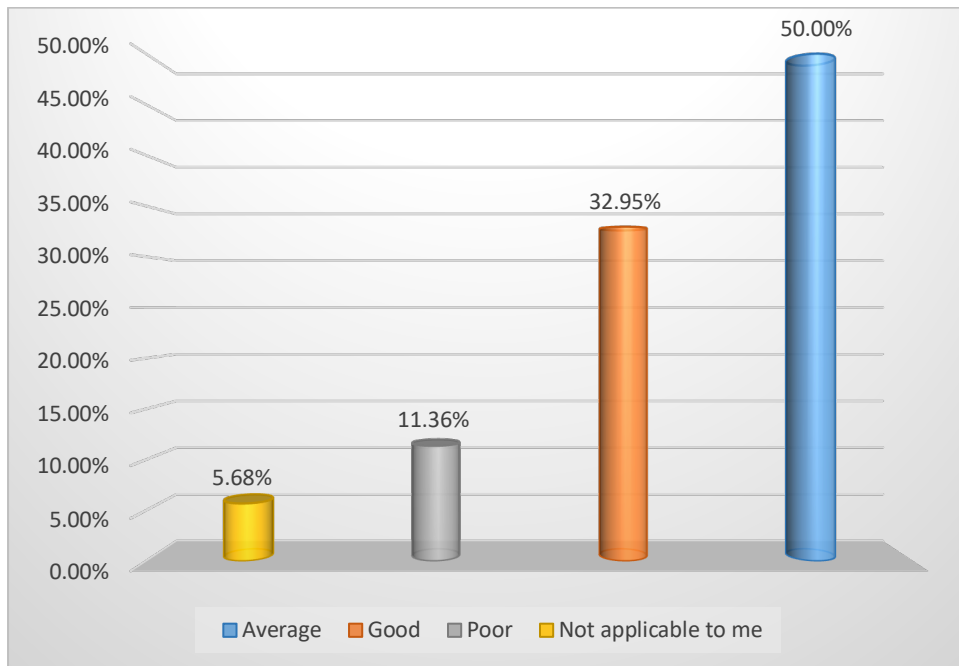


was clearly defined, while 59 (33.55%) strongly agreed and agreed that organisational KMS was clearly defined. A combined 154 (87.5%) of quantitative respondents strongly agreed and agreed that selected MT companies had no organisational KMS strategy, while 22 (12.5%) indicated the ICT policy as a KMS strategy to assist with implementation. Only nine qualitative respondents responded that there was no organisational KMS strategy for knowledge management activities. The remainder were uncertain and promised to communicate; however, after repeated attempts, no response was obtained, including a copy of the strategy. In light of this, follow-up inquiries revealed that organisational KMS, particularly ICT for information management, was extremely beneficial since it enables processes to receive, retrieve, search for and transmit information. In addition, nine senior managers concurred that organisational KMS was essential for the selected MT companies, which might be hindered by the absence of a knowledge management strategy.

In response to a follow-up qualitative question, senior management participants agreed that organisational KMS, specifically organisational knowledge collaboration, was the responsibility of managers and their subordinates for it to successfully work. Similarly, the investigation found that respondents thought that divisional engagement contributed to the success of their companies. Qualitative data from senior management confirmed quantitative data showing capabilities, namely that organisational knowledge management systems permit and enhance organisational knowledge management. However, there were signs of a deficit in limited organisational knowledge sharing.

However, ten (90.9%) participants recognised the critical role of training on organisational KMS in enhancing employee performance. These findings, corroborated with quantitative responses, showed that 138 (78.4 %) of employees preferred online training, including simulation skills, as critical in improving their overall performance, while 38 (21.4 %) were neutral. In relation to the importance of organisational KMS for KM practices, 137 quantitative respondents (77.8%) reported a lack of motivation and that selected MT companies lacked a structural reward system and had a low degree of employee involvement. Fifty percent of quantitative respondents indicated that selected MT companies that implemented KMS, which focuses on informal communication and collaboration functionalities and allows online chat, were average, while 33% were good, 11.46% were poor, and 6% did not apply. Their responses are illustrated in Figure 24 below.





**Figure 27: KMS on informal collaboration functionalities(n=176)**

Qualitative findings show that management in selected MT companies recognised that there were mostly Internet connections available to all workers. In light of that, qualitative data further showed that there are not enough incentives, rewards, and appreciation for people to share information and send people to seminars. The following selected qualitative responses were received:

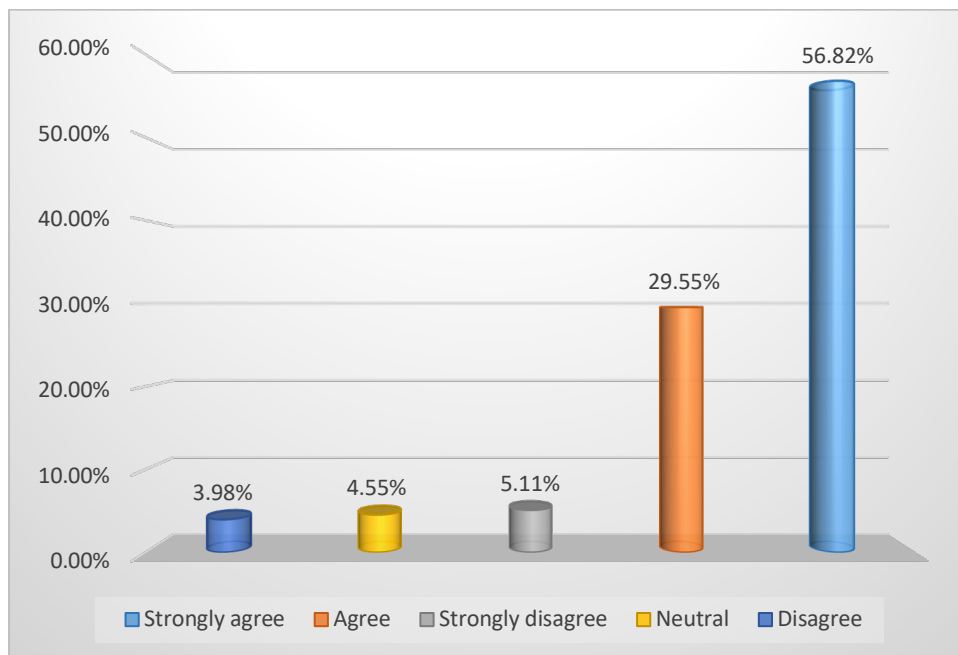
Noting the importance of proficiency, the introduction of incentives to encourage workers to utilise the organization's KMS in order to gain access to OK is suggested. Participant 10 said, *"Online training lets employees work with electronic engineering systems, which lets them build electronic circuits and devices using nonlinear and active electrical components."* Participant 11 stated, *"We have extensive training programmes that assist employees to become more engaged in their own employment, and they are always supported by upper management."* The seventh participant had the following to say about the KMS training in its different aspects: *"Occasionally, I have the sensation of being back in a university lecture hall. This environment and the feeling of learning more are crucial to me since I learn more during such sessions. "*

Participant 5 said that *"We have a forum where employees can discuss technical difficulties with the IT department, and where we can suggest ways to simplify technology services we intend to use daily."* A cloud-based architecture for information

sharing, for instance, supports employee cooperation principles and aids in the management of our documents, folders, e-mails and agendas. Nevertheless, it demands employees to collaborate or function as a team on the content and other tasks, as well as work in the same office or remotely. Until requested, the willingness of some employees to share information or expertise looks limited.

Moreover, qualitative findings indicate further that there was widespread agreement with quantitative data in selected MT companies that there was still a lack of motivation, incentive plans, inadequate online networking skills and a lack of regular online contact on the issue of common objectives between top managers and workers at the lowest hierarchy, along with an absence of basic divisional collaboration. However, 89 (50.5%) of quantitative respondents strongly agreed and agreed that implemented online OK classification supported organisational KMS, 67 (38.1%) strongly disagreed and disagreed, while 20 (11.4%) were neutral. Respondent 11 said *“We have online systems in place that define each department’s information and accessibility.”*

Quantitative respondents were asked if organisational KMS implemented was compatible with organisational practices. Furthermore, 152 (86.4%) of quantitative respondents strongly agreed or agreed that selected MT companies had implemented KMS that focused on online meetings, while 9.1% strongly disagreed or disagreed and 4.55% were neutral. Their responses are illustrated in Figure 25. It is important to note that 117 (66.5%) strongly agreed and agreed that selected MT companies had implemented organisational KMS via discussion forums for KM practice, while 49 (27.8%) and 10 (6%) were neutral.



**Figure 28: KMS focused on online meetings (n=176)**

In addition, qualitative evidence indicates that ICT supports and promotes organisational knowledge management systems. Commenting on the reliability of enhanced technology that supports employees to access documentation and time for online discussions, Participant 7 said that *"Despite our encouragement to connect and participate in online sessions focused on organisational activities, it looks as if they are interested but hesitant to contribute the bulk of what they have learned."* Similarly, Participant 10 asserted that *"I have seen a rising issue in an organisation's workplace, where employees tend to withhold and hoard information from others but are more candid with their supervisor on a one-on-one."*

Both quantitative respondents and qualitative participants were asked to name the most important benefits of a good implementation of organisational KMS for KM practice. Qualitative results showed a strong understanding of OK culture as the most critical facilitator in reference to implementing KMS for KM practice. While organisational culture was critical and showed a strong emphasis during the first stages of KM adoption, it was also found that it enabled improved interpersonal interactions during the project's later stages. The following selected qualitative responses were received.

Qualitative Participant 2 commented that *"Organisations with well-defined project procedures and extensive project knowledge improve the likelihood of ICT or organisational KMS implementation success."* Participant 4 pointed out that *"We are*

*often assisted with our projects through the sharing of information, the establishment of guidelines, the provision of necessary training in the field of execution, the centralization of interaction, and the assignment of tasks to line departments. In most situations, I feel this has helped us. Of course, there is still an opportunity for development."* However, qualitative Participant 8 claims that *"In our ICT policies, there are obviously some guidelines on what you can share and what not to."*

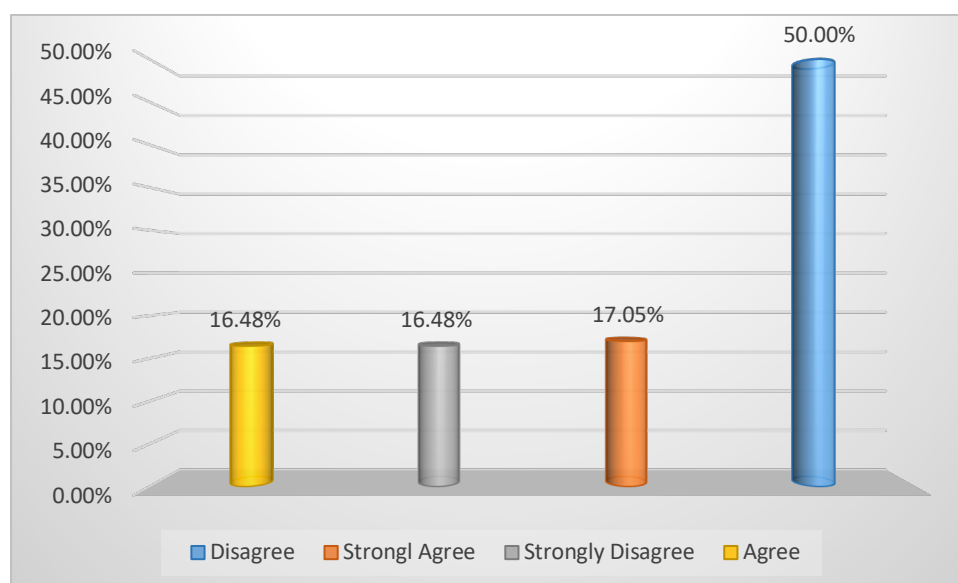
Embracing the importance of motivating employees, Participant 3 commented that *"In today's competitive environment, it has been observed that principles of information exchange do not emerge as anticipated in the workplace. It turns out that employees must be incentivised to be proficient in information interchange. That's what an employee's expertise is: to share relevant thoughts or material they find beneficial to the organisation with their colleagues online or in person"*. Participant 6 admitted that *"Employees need to get to know each other in order to create the essential trust. Thus, we always arrange certain events that allow employees to engage in after-work or social outings on the occasional take a break. We learned that it is an excellent opportunity for us to spend time around each other in more informal or social settings."*

Participant 9 commented that *"We need avoid making errors of presuming that they lack relevant expertise or ideas just because they are lower in command. That does not work for us. In our company, it is irrelevant how much experience one has in their area of expertise. What is vital here is always a pair of thoughts and the accumulation of peer opinions. We learned that asking may feel awkward at first, but it becomes clear quickly that asking for or giving feedback is a good way for everyone to work together."*

In light of qualitative findings, a total of 137 (77.8 %) quantitative respondents strongly agreed or agreed that well-implemented (consulted) or advised organisational KMS initiatives achieve better employees' efficiency performance by reusing existing skills and knowledge. Findings further showed that timely detection of industry trends would empower organisations or users to gain an advantage over their competitors. However, the impediments to organisational KMS in selected MT companies showed lack of training and development organisational KMS was a significant hindrance to successful organisational KMS implementation in selected MT companies in Namibia.

Furthermore, qualitative respondents showed that selected MT companies must do more than encompassing organisational KM to realise the rewards; be innovative in order to produce superior results; and there is a link between business productivity and success and the proper implementation of an organisational KMS. Additionally, qualitative responses revealed the importance of developing effective methods for capturing and recording business knowledge; increasing accessibility; incentivising employees to share, reuse and apply new knowledge continuously; and reconciling knowledge management with overall company objectives and strategy.

However, a combined 89 (50.5%) of quantitative respondents strongly agreed and agreed that lack of awareness of the benefits of KMS, technology and a culture of sharing information, while 87 (49.4%) indicated that management/leadership, senior management commitment, lack of strategy on information and knowledge management and technology, as well as a culture of not sharing information, are impediments to the success of organisational KMS for KM practice. In light of that, a combined quantitative respondent 117 (66.5%) strongly disagreed and disagreed that organisational KMS and their practices were clearly defined, while 59 (33.5%) strongly agreed and agreed.



**Figure 29: KMS clearly defined (n=176)**

A total of one hundred and twenty-one (66.7%) of quantitative respondents believed that selected MT companies in Namibia had high-speed computer systems, whereas 55 (31.2%) stated that selected MT companies lacked high-speed information systems. However, the study discovered that 141 (80.1%) of quantitative respondents stated that management teams lack the necessary support for organisational KMS;

additionally, 37 of quantitative respondents answered that managers were devoted to and still created a social supportive framework for OK exchange via symposiums, seminars, and discussions, compared to 44% who strongly agreed and agreed that management teams did not generate a collective supportive framework for OK return. It was no surprise, given that the following selected qualitative responses were received:

Participant 2 commented that *"We do not have a department for knowledge management, which in all shows that we might lack or have insufficient expertise in that area, but we are working on it."* Participant 3 suggested that *"It is important to work on our attitudes to get and keep employees motivated, although it could be a challenge to get everyone. Keeping up with ever-changing technology is a challenge for me, or let me say for us."* Participant 6 emphasised that *"Information takes time to be updated; insufficient motivation from the superiors to share knowledge online; time; the culture of hiding information; lack of reward; I think these are contributors or as a problem for ICT."* Participant 11 commented that *"Giving staff technical tools and lacking supervision creates the atmosphere for a facility that may not get off the ground and will surely not be viable. That is why we emphasise training sessions so that we get to know how to use the tools."* It is important to emphasise that employees had a wide range of learning outcomes that are critical to the success of new technologies. As a consequence, Participant 4 observes that *"In our organisation, we emphasise the value of new training by utilising simulated analogies."* Participant 5 stated that *"Throughout training, we (staff) engage in group activities on newly obtained knowledge to build new goods. It's also worth noting that even when technology is new or employee-friendly, certain employees will still require training until they feel comfortable using it; otherwise, nothing will come of it."*

The qualitative study established that it was important that selected MT companies measure OK contribution and security, keep shared information up-to-date and accurate, and interpret data effectively. In spite of the evidence of high computer systems, limited rewarding active users, and determining who will be responsible for managing OK, overcoming shared leadership was a problem for organisational KMS for KM practice.

## **5.5 Summary Of The Chapter**

This chapter examined and presented quantitative, qualitative, interview and documentary data. The Statistical Package for Social Sciences (SPSS) was used to analyse quantitative data, while content analysis was used to analyse qualitative data and documents using Google World Cloud. Tables, graphs and narratives were used to present the data. Organisational KMS strategies, infrastructure, management support, employee views and enablers for organisational KMS were investigated in relation to the implementation of organisational KMS in selected MT companies in Namibia. Additionally, organisational knowledge management barriers were identified in selected MT companies. Organisational KMS was shown to be supported by elements such as, infrastructure, technology, organisational culture and senior management support and employee perception informally without a formal KMS or KM strategy in place. This conclusion is crucial because organisational KMS for knowledge management processes in selected MT companies in Namibia must be defined and standardised in relation to these concepts. The next chapter presents a discussion of the findings of this study.

## CHAPTER SIX: DISCUSSION AND INTERPRETATION OF RESEARCH FINDINGS

### 6.1 Introduction

This chapter discusses and interprets the findings of the study, previously presented in Chapter Five. Thus, while discussing and interpreting the study's results on organisational KMS in selected MT companies in Namibia, the study makes reference to the findings of previous reviewed studies and literature, and the conceptual framework discussed in Chapter Four in order to enlighten the debate. Additionally, the discourse was directed by the study's main objective and sub-objectives as outlined in Chapter One. Sarantakos (2013:449) states that the discussion of findings chapter aims to incorporate the research results into conceptual frameworks, the study's objective, and its central propositions by providing some more summary based on the research questions and enlightening a number of the issues raised by the research problem. In line with the views, the interpretation of research findings of this study was grounded on the significance and inference in the light of the research personal viewpoint, purpose of the study grounded on pluralism and mixed methods viewpoint in relation to the research objectives as well as conceptual framework. According to Mutsagondo (2021:192) the discussion should highlight the researcher's own view on pluralism, an ontological approach rooted in the presence of various realms and diverse inferences. In that light, the discussion centred on data obtained from the questionnaire, interviews and documents on organisational KMS in selected MT companies in Namibia. The fifth objective's issues are addressed in the discussion which covers objectives one through four to avoid duplication. This is because organisational KMS impediments and facilitators are specific characteristics in objectives one through four.



## **6.2 KMS Strategies for Knowledge Management System**

The first objective of the study was to determine the strategy implemented for organisational KMS in MT companies in Namibia. Under this objective, the first sub-question was: What are the strategies in place that guide organisational KM initiatives, in particular for KMS in MT companies in Namibia? To investigate this sub-research question, the researcher used quantitative and qualitative data as well as a document review to ascertain whether selected MT companies in Namibia have an organisational KM strategy in place for organisational KMS. The underlying understanding was that the effectiveness of an organisation's knowledge management system is contingent upon the creation of implementation techniques that rely on either codification or personalisation systems in selected MT companies in Namibia, both of which were found to be practiced informally.

The study established that selected MT companies in Namibia lacked an organisational knowledge management strategy. According to the quantitative respondents, 94.3% indicated that selected MT companies in Namibia do not have a strategy on organisational KM, in particular on organisational knowledge management systems. The findings corroborate various scholars' assertions that Tounkara (2018), Ouriques, Wnuk, Gorschek and Svensson (2019) and Thang and Tuan (2020) indicate that the majority of organisations underperform with KMS due to a lack of a strategy emphasising the adoption and adaptation of personalisation and codification strategies. Thus, it is critical for the selected MT companies to understand and leverage the fact that the most critical organisational KMS for the success of the KM practice is establishing, implementing and adapting strategies that define how OK may be managed inside the organisation. As a result of the findings, Namibia's selected MT companies need to incorporate organisational KM strategy for KMS that are based on ways to get employees to be more creative in online documents in order to create intellectual assets. Effective use of KMS designs could help some MT companies improve the use of their organisational knowledge management activities.

The study further established that selected MT companies do not have a department or a section that deals with organisational KM. Most of the senior managers' understanding was that it should be under the human resources department rather than a department on its own. This reveals a lack of awareness of organisational KM and that an organisation's knowledge management system (KMS) lays the groundwork for applying organisational knowledge management techniques to

selected MT companies in Namibia. Thus, efficient KMS implementation is dependent upon understanding and developing organisational strategies that embrace and abide to KMS management standards for knowledge management endeavours. These techniques provide a substantial contribution to the creation of a supporting organisational structure and work culture for knowledge management in conjunction with personalisation or codification inside selected MT companies in Namibia. As shown in Chapter 4 and Chapter 7, companies that use knowledge management systems should be aware that adopting and changing corporate KMS may be cyclical and reciprocal.

Besides the importance of the strategy for managing organisational knowledge. It was found that OK is the foundation of all organisational activities in MT companies. However, it lack a formal framework for managing it as opposed to a personalisation or codification approach. As a result, its benefits for selected MT companies are limited, in particular in its ability to induce innovation. It is worth emphasising, then, that advancing OK effectively via the use of organisational KMS should necessitate developing a strategy. It is important to point out that employee benefit from a greater understanding of best practises, a heightened level of awareness, enhanced corporate decision-making, and a competitive edge when selected MT have right KM strategy.

Thus, given that tacit OK found underutilised, it is critical for the selected MT to leverage tacit OK and understand that the organisation's most critical success and investment (organisational knowledge) are contingent on optimising OK. Tounkara (2018:2) affirms that organisational KMS methods aid in classification into four combinations of capabilities that aid KM activities, including KMS support for knowledge source identification, codification, storage and dissemination and acquisition. This is important in establishing a formal organisational environment for managing OK in MT companies. Cheng (2020) and Basten, Schneider and Pankratz (2017) confirms that the knowledge management approach, more specifically the organisational knowledge management system, should be chosen by the kind of OK to be managed. This understanding gives empirical support to this study in relation to the importance of KM strategy, as well as to Nonaka and Takeuchi's tacit OK model and the TOE framework as theories emphasising the vital significance of knowledge management via social and technological context that rest on a strategy.

Therefore, in that light, the SECI and TOE models emphasise the need for good technology deployment in fostering an environment conducive to organisational knowledge management. The study, therefore, discovered no formal context for organisational knowledge management techniques beside their strategic importance to organisational KMS for KM practice. Cheng (2017) and Basten, Schneider and Pankratz (2017) points out that the technology used to manage knowledge should be determined by its existing knowledge. In that light, MT companies will have to figure out how they can take advantage of the interconnected nature of their organisational KMS infrastructure in order to pursue either a personalisation or codification method.

Both respondents and participants stated that they were aware that tacit and explicit OKs were more influential. However, employees decided to utilise tacit OK sparingly and preferred the use of documents online. From this vantage point, organisational KMS in particular KM strategy should incorporate aspects of their own communications systems in order to foster expertise within organisations by cultivating trustworthiness, support and positive regard for methods of exchanging expertise geared toward background diversity in order to develop strong communities of practice (Punpukdee 2020). In that situation, KMS strategy ought to be considered in selecting a subset of specified information system elements (and associated organisational rules) with the objective of enhancing KM activities (creation, sharing, transfer, and application) (Tounkara 2019). Basten, Schneider and Pankratz (2017) produced suggestions for the design of organisational KMS for the purpose of defining and classifying knowledge classifications for ease of reference.

Thus, it is critical for MT companies to recognise that the OK needs to be organised by a human-centred knowledge management system design has a dualism between the two choices (that is, machine-oriented design and human-machine-oriented design). While four types of OK may be handled using machine-oriented knowledge management system designs, the other eight need a knowledge management system that is both human and machine-oriented (Basten, Schneider and Pankratz, 2017:19). Thus, it is crucial for MT companies to realise that the most significant part of organisational performance and OK management is adopting a knowledge management strategy that allows successful KM to induce innovation. This procedure highlights the incorporation of organisational KMS design into the development of the KM programme by MT companies. This is done with the understanding that organisational KMS involves employee participation from the developmental stage to

the operationalization of the systems, which gives them a sense of ownership and contributes to the system's success. The programme places employees at the centre of knowledge management system design and problem-solving issues through collaborative efforts, mutual participation, and the use of data visualisation in employee focus group discussions.

As shown by qualitative and quantitative data, MT companies are very knowledge-based. In that light, MT companies need to include strategic tacit approval in written official papers in order to build intellectual assets that will give them a competitive advantage. It is therefore, important a strategy based on the codification of tacit knowledge, could facilitate the establishment of an OK database. More specifically, nurtured by organisational culture of open communication that results in the institutionalisation of OK sharing incentives. In that light, one way to adopt and manage OK is to use organisational personalisation complimented by codification. This strategy shows how to deal with tacit OK using technology as outlined by the SECI and TOE model in reference to how to use tools such as online meetings and simulations based on collaboration and networking to assist in managing OK. Nouri, Moshabaki, Raissi and Javadinia (2013) identified leadership as a critical component for the personalisation approach and technology. The authors add: "It aids strategy development; employees in developing, keeping, and sharing knowledge through online person-to-person interaction; the primary role of information technology in this approach is to aid individual employees interacting with knowledge where they have access to information, use it, and freely share it." It's important, therefore, for MT companies to know that, a formal organisational KMS deployment is needed to keep track of OK. This should be part of the organisation's KM strategy.

With that stated above, it is essential for MT companies to recognise that diverse types of OK, particularly its many variations, may provide a competitive advantage when correctly coordinated with both codification and personalisation initiatives. The former is reliant on the explicit nature of information; it may be kept in knowledge databases and made available to various levels of the company. The latter is based on tacit knowledge that people possess and share across companies. This concept is related to the study's discovery that information in MT organisations is tacit and explicit, despite the fact that it is often executed informally. While standard knowledge management systems are considered sufficient for managing explicit data (Basten,

Schneider and Pankratz 2017; Andriani, Samadhi, Siswanto and Suryadi 2019), tacit knowledge management may need the addition of frameworks.

Inkinen, Kianto and Vanhala (2015) as well as Andriani, Samadhi, Siswanto and Suryadi (2019) strategic knowledge management encompasses the design, execution and maintenance of the company's knowledge-based assets. According to these authors, an organisational knowledge management strategy entails defining critical strategic organisational knowledge and developing a knowledge-based method, as well as monitoring and measuring knowledge resources within the organisation and their developmental requirements in line with the business environment. Implementing a strategic knowledge management system for KM practices improves organisational performance, allowing MT companies to focus on their most critical knowledge-intensive activities. This can only be stated in terms of a strategy based on their expertise and investment prospects, which presupposes the development of a strategic decision based on usage, innovation and the ability to share their expertise, all of which are aligned with their overall strategic objectives for competitive advantage.

### **6.3 Knowledge Management System Infrastructure**

The second objective of the study was to establish the strategies implemented for organisational KMS in MT companies in Namibia. The first sub-question addressed this objective: What infrastructure has been implemented for organisational KMS in Namibia's MT companies? It is important to note that organisational KMS in this study was focused on information technology that aims to enable organisational KM practices, in particular, improve knowledge sharing and access for employees (users) and, in particular, for experts inside an organisation. It was further acknowledged that technology not only facilitates cooperative learning but also has the potential to archive and retrieve information by way of databases designed specifically for that purpose (Abualoush, Masa'deh, Bataineh and Alrowwad 2018).

The study demonstrated that selected MT companies in Namibia have required infrastructure for organisational knowledge management systems. Findings from this study (81.1%) showed that communication infrastructure for organisational KMS is used for collaboration. This indicated an important component of success in relation to organisational KMS for KM practice. The above findings coincide with Razzaque,

Eldabi, Jalal-Karim and Karolak (2012), who found that for the KM pre-requisite environment, organisational knowledge management requires knowledge management technologies such as infrastructure, online databases, extranets and intranets. These scholars continue to assert that organisations need knowledge management at this stage in order to bridge information silos across experts, gain knowledge from and exchange experiences, prevent previous mistakes, collaborate across departments, eliminate medical errors and communicate processes and viewpoints. The company may develop a more effective and efficient staff by implementing a knowledge platform that allows all employees easy access to data. In light of that, decisions would be best made by those who are well-informed and who know how and where to find the information they need. Similarly, this understanding is important as most organisation strive to induce innovation, empower employees and improve employees and organisational performance. Aviv, Hadar and Levy (2021) state that organisational KMS infrastructure are effective when they involve specific real time organisational knowledge standards in an organisational knowledge intensive process to induce innovation or competitive advantage.

Cononico *et al* (2020), Tsetim *et al* (2020), Abualoush, Obeidat Tarhini Masa'deh, and Al-Badi (2018) as well as Shehata (2015) emphasise that collaboration infrastructure are important for organisational KMS as they support employees in solving technical and decision marketing. These authors make reference to *Obeya* which was developed by Toyota as a problem-solving management system, business practice, building people; closing gaps, innovating in relation to the production of services or products by creating or setting up advanced visual control innovation room (Canonico *et al* 2020). Aviv, Hadar, and Levy (2021) found that the efficiency of organizations' knowledge management (KM) systems would improve if certain real-time knowledge techniques were added to the operational flow of knowledge-intensive business processes. In that light, MT companies in Namibia could use organisational KMS infrastructure by involving different specialists and others decision makers and create or develop systems that would benefits them in timely innovative ideas, decision making both from tacit and explicit OK for competitive advantage.

It is from the perspective above that Tsetim, Adegbe and Agema (2020) as well as Mzwinila, Okharedia, and Lekunze (2022) empahasis that organisational KMS capabilities are rooted in organisational KMS infrastructure and processes capabilities

grounded on a collective environment such as technology, culture and structure. This was shown by 63.1% of the respondents. In terms of the impact teleconferencing technologies such as Zoom, Google Hangouts, True-Conference Online, Microsoft Teams, Skype and YouTube Live are utilised as organisational KMS solutions for knowledge management practices, (82.9%) of that e-learning tools are important tools for organisational KMS for KM practice of respondents respectively agree with this assertion. In light of that, a well-established KM infrastructure could help selected MT companies in Namibia to reach their goals (Aviv, Hadar, and Levy, 2021). One way this could happen is by improving how organisational KMS is implemented and what it produces. However, processes and structure were found not to be responsive to the implemented organisational KMS and pose a great organisational challenge towards organisational KMS such as no guideline or instruction on how to use e-learning 125 (73.4%) apart from infrastructure capable of channelling, managing and safeguarding information inside an organisation and providing the foundation for a knowledge management system. It is believed that this will disadvantage important learning curve, infrastructure capabilities that would support processes of acquire and conversion, application, preservation as well as undertaking that encourage innovativeness projected to leverage or induce organisational competitiveness.

Findings further revealed that access and use of online explicit documents (64.2%) indicates that accessibility to OK is important for conceptualisation, hence, to induce innovation for competitive advantage. This demonstrates that strengthening users' opportunities to impact others by expressing personal expertise and organisational KMS helps to improve how organisations customise and use methods and technology to facilitate knowledge management practice. It is therefore important that current organisational KMS infrastructure permits OK in digital tacit and explicit format that enhances its accessibility by creating a technological system that accepts undocumented OK to be created out of simulation or in action. Considering that selected MT companies have required organisational KMS infrastructure that support organisational KM practice, disseminated shared and transfer ought to be formalised and employees in different aspect of responsibility or productivity of their organisation (Hussein and Ermine 2021:33). These authors further state that in most cases organisations' OK gained out of conversation and experience of employees largely remain untapped, unless managed through electronic exit interviews or manual or

automated systems. This understanding coincides with the qualitative findings of this that selected MT companies have exit interviews for those who retire and switch organisation. However, such information is not shared among departments and in central repository.

It is therefore, important that selected MT companies adapt and adopt infrastructure rooted in digitalising or codify and personalisation strategy as suggested by Adeinat and Abulfatah (2019) and Thang and Tuan (2020). According to Abualoush, Obeidat, Tarhini, Masa'deh and Al-Badi (2018), both the report and techniques ensure sustainability in operations processes by expanding existing understanding, its effects, utilisation and reusability. Furthermore, this same understanding of social concepts and the additional benefit framework ensure the generation of new knowledge, and all these methodologies identify four fundamental knowledge management processes such as creation, sharing, storage and skills acquisition. This is further acknowledged by 64.2% of the respondents further that selected MT companies utilise a variety of technologies to support organisational KMS in particular KM practice which including customer relationship management systems, learning management systems, customer portal systems and document management systems. Consequently, the organisational knowledge management infrastructure of selected MT companies should take into account both theoretical and practical issues that have come up as a result of changes in knowledge, workplace culture, and IT.

These findings above support the argument made by scholars such as Thang and Tuan (2020), Khodakarami and Chan (2014) that collaborative systems accelerate the process of combination, whereas collaborative systems expedite externalisation, operational systems promote socialisation within an organisation and collaborative and analytical systems encourage internalisation by presenting opportunities for professional development. As a result, without utilisation, organisational KMS infrastructure increases organisational KMS redundancy and risks of operationalising organisational KM practices.

#### **6.4 Senior Managers Support for Knowledge Management System**

The third objective of the study was to establish the level of support by senior managers towards organisational KMS in MT companies in Namibia. The successful



implementation of organisational KMS for Km practice in selected MT companies in Namibia relied on organisational management support.

Moreover, some of the leading themes which were found common through the majority of the responses KM practice should be supported by organisational KMS on issues of policies and strategies that influence how it is implemented. Findings from this study 84.1 % respondents agreed that management should support and improve the KMS of the organisation. Such understanding coincides with Garcia-Sanches, Garcia-Morales and Bolivar-Ramos (2017) who found that top management support for organisational KMS has positive consequences for organisational knowledge management systems for knowledge management practices as it mediates mechanisms in relation to top management support via provision ICT. This was acknowledged by 80.1% of the respondents that investment in information management systems and effective knowledge sharing, central organisational repository including online report sharing and online meetings, are good examples of senior management's valuable assistance and help for organisational KMS in selected MT companies in Namibia. This is central to the building of learning in selected MT companies making sure that employees take learning as an important understanding to induce innovation. Given that personnel often retire with a wide range of expertise that the company must harvest through modern knowledge management systems in order to avoid downtime and workforce shortcomings.

It is further important to note that top management foster an environment conducive to contrast enhancement, practice, and mentorship programmes interactions. Findings from this study 72.2% of the respondents acknowledged that management has a duty to support efforts to improve organisational KMS for knowledge creation, sharing, transfer, storage, and use. Furthermore, 77.8% indicated that senior management is likely to facilitate access to information, promote innovation and leverage knowledge through collaboration, owing to the presence of established connectivity technology tools. Correspondingly, this study discovered that the results were almost evenly split. This study discovered that the results were almost evenly split 50% of their senior managers are committed to fostering an online learning environment in selected MT companies in Namibia. However, important to note that 63.6% of quantitative

respondents said that management had failed to involve them in initiatives to share organisational knowledge. In light of this, Abualoush, Masa'deh, Bataineh, and Alrowwad (2018) revealed that organisational KMS ought to be implemented in an understanding centred on how senior managers should eliminate all potential barriers, especially knowledge creation and sharing, and promote collaboration and networking for knowledge transfer in order to achieve high performance.

Furthermore, the above findings are in line with Garcia-Sanches, Garcia-Morales and Bolivar-Ramos (2017) who found that top management support for organisational KMS has positive consequences for knowledge management systems in particular knowledge management processes as it rooted on mediating mechanism in relation among provision of necessary ICT and organisational performance. Thus, this study confirms the findings of Nawaz and Gunapalan (2015) as well as Wolverton and Lanier (2019) who found that top management makes provision of necessary resources and re-engineering of the organisation processes hence the support from top management as decision making is crucial for the success of organisational KMS in selected MT companies in Namibia. Furthermore, Wolverton and Lanier (2019) point out to the understanding above that it is rooted into the examination of the macro-level on organisational KMS management decision that is grounded on a formal and informal linking structure, communication processes and size. It is through this understanding that financial decisions enable selected MT companies to implement an innovative and integrated KMS.

Despite a high rating shown on the importance of top management towards organisational KMS, the findings of this study also demonstrate that there is disagreement, 63.6 % of respondents said that management had failed to involve them in initiatives to share organisational knowledge. According to these findings, the concern is that top management in selected MT companies does not view organisational employees' participation and acceptance during the execution process and awareness as a necessary component of organisational KMS for KM practice. Additionally, it is evident that the organisational structure of selected MT companies tended to discourage and limit consultation with employees as users of the organisational KMS. To some extent, top management can happen only if the cultures

of some MT companies explicitly allow employees to help implement organisational knowledge through meetings with all of their co-workers. It is important to observe that organisational KMS issues are influenced by extremely dynamic organisational contexts, complex intellectual processes at all levels of the organisation, appropriate use of information and communication technology, and a quick rate of information and knowledge regeneration (Aviv, Hadar, and Levy, 2021). This study findings, therefore, showed the importance of top management as important decision makers and importance of integrating them throughout the process of organisational KMS implementation.

### **6.5 Employees Perception towards Knowledge Management System**

The fourth objective of the study was to establish the perception of employees towards organisational KMS at MT companies in Namibia. Employee perception towards organisational KMS implementation was a core aspect to explore within the selected MT companies. The main findings under this section have shown that the strong success of organisational KMS depends on the importance of employees' and management's attitudes. Managers in selected MT companies may need to stress how important they are for employees to learn from them and each other using online platforms and promote KMS. Findings further showed that employees had a willingness to use organisational KMS technologies to access and share OK with colleagues. However, it is interesting to note that the organisational KMS was designed with their consultation. This, however, shows limited promotion of KM practice because it has an effect on employees' attitudes towards sharing knowledge. In reference to that understanding, which showed that OK is conditional and contextual and depends on the circumstances that shape transmission, in particular the organisational KMS implementation in the selected MT companies. Hence, the condition in which OK is harvested and deposited in an organisational repository is important to understand.

Moreover, several prominent themes that emerged from the majority of responses to organisational KMS for knowledge management practices were constraints such as employee attitudes, reluctance to use organisational KMS, particularly social networking systems, incentive and reward systems and a lack of understanding or awareness of the benefits of organisational KMS for knowledge management practices. If the issues are addressed, a positive perception of organisational KMS may be possible. In this way, trust ought to be built up in order to encourage positive

behaviour, improve network relations, foster positive relationships and lessen the conflict and costs of implementing an organisational KMS. However, other issues important to note is the rates of the perception of supervisor's ability to use the systems, 88 (50%) were average, 58 (32.9%) were good, and 20 (11.4%) were rated poor. The positive perception of managers thus has a significant influence on the delivery organisational KMS, as they are a consideration of both the appearance and the locus of the selected MT companies in relation to its success. In the same vein, the successful implementation of organisational KMS can only be achieved when managers show a positive example of organisational KMS adequately.

Findings above are in line with those of Al Ahbabi, Singh, Balasubramanian and Gaur (2018), as well as Ouédraogo and Rinfret (2019), who assert that sharing management expertise with other managers may assist in establishing trust with their subordinates. As a result of this viewpoint, organisational KMS for knowledge management procedures are perceived to be provided consistently and efficiently across organisations as a result. It is critical, therefore, to underline that these processes, amongst others, enable employees to have a basic ability to trust and believe in the organisation's KMS's significance or advantages. It is therefore important that selected MT companies' architecture and culture allow employee participation during implementation and use to generate many opportunities for other employees to acquire and utilise organisational knowledge online. In this context, the study establishes that when top managers do not understand the organisational KMS for knowledge management and its relevance, knowledge management practices become problematic, especially when it comes to innovation generation. Furthermore, the findings of this study indicated that organisational knowledge management systems for knowledge management practices are critical to their performance in driving innovation among Namibia's selected MT companies if properly implemented. However, the low level of involvement in the organisational KMS in terms of acquisition, dissemination and capture, as well as the limited use of online platforms, is blamed on a dysfunctional corporate culture that does not visibly support the use of the KMS for KM practices.

It is therefore important that the value proposition of organisational KMS ought to be sustained by the perception of the quality of OK, in particular the source and organisational KMS standards in relation to user interface, participation and sense of belonging to employees and their benefits. This understanding is acknowledged by

Rhem (2014) that it is important to create positive employees' perceptions and attitudes in relation to organisational KMS as an important aspect, and in particular, user participation. Yang, Liang, Avgeriou, Liu and Xiong (2021) and Wolverton and Lainer (2019) found that organisational KMS during implementation ought to create that factor of perceived ease of use (to what extent employees can use KMS without assistance), perception of external control (requirements of documentation can facilitate the use of KMS), perceived enjoyment (to what extent organisational KMS are pleasant and enjoyable) and experience (to what extent experience in relation to accountancy, marketing and engineering, amongst others, has an impact on the perceived ease of use of the organisational KMS implemented). This observation is consistent with the findings of scholars Wolverton and Lainer (2019), who discovered that organisational KMS implementation is rooted not only in employee perceptions of high quality and reasonable price, but also in employees' desire for the KMS to integrate effectively with other areas of the organisation.

This result above, validates the authors' findings, as similar factors appeared to derail organisational KMS for knowledge management practices in selected MT companies. Employee perceptions of organisational KMS appeared to be diverse in a sample of MT companies due to limited awareness and involvement. The findings indicated that the majority of employees were not motivated or encouraged to use the organisation's knowledge management system. Additionally, more than two-thirds of respondents indicated that they are generally willing to share their approval. However, employee perceptions of organisational KMS appear to be favourable when they are involved in multiple stages and OK sharing is viewed positively. Thus, management must ensure that organisational KMS occurs. Additionally, a lack of employees' trust and organisational motivation to promote acceptable behaviour were cited as barriers to organisational KMS. These findings imply that there is a lack of formal understanding and encouragement of KMS in the MGECW, resulting in a negative attitude toward organisational KMS for KM practice. Correspondingly, this finding suggests the critical nature of understanding employees' perceptions throughout the development and use processes, with a particular emphasis on potential advantages. This means that chosen MT companies should be aware of how important it is for KMS implementation that KMS be compatible, specific, durable and easy to use. It is also important in terms of how KMS implementation works.

## 6.6 Summary Of Chapter

This chapter discussed the results from Chapter 5 and makes references to the literature discussed in Chapter Three. The discussion emphasised and displayed respondents' and participants' viewpoints on the implementation of organisational knowledge management systems in selected MT companies in Namibia. The discussion of the outcomes from the organisational KMS implementation in selected MT companies indicated that the organisation's efforts are centred on OK. However, the company lacks an organisational KMS strategy that encompasses information exchange, collection, dissemination, transfer and OK capture. Furthermore, the discussion revealed that selected MT companies had a broader organisational KMS infrastructure for managing OK and KM. The discussion further centred on employees at Namibia's MT companies who have a favourable opinion about organisational KMS. They believe that deploying organisational KMSs with consideration enhances access to and usage of knowledge stored on KMSs. Lack of motivation, trust, incentives and online support platforms and ICT skills all contribute to the inability of MT companies to take advantage of organisational knowledge management systems to induce innovation. The conclusion above indicates that the SECI Model and TOE framework processes could play a more significant role in developing strategy for the organisational KMS for KM practices of the selected MT companies. These results were mostly addressed in the literature review chapter and support the SECI Model and TOE Framework. The next chapter presents the summary, conclusions and recommendations of the study.

## **CHAPTER SEVEN: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS OF THE STUDY**

### **7.1 Introduction**

The preceding chapter discussed and interpreted the findings of the study. Thus, the purpose of this chapter is to summarise the research findings, draw conclusions, and make recommendations for how to improve the implementation of organisational knowledge management systems in selected MT companies in Namibia. The chapter comprises the following sections: a summary, conclusions, and recommendations. The rationale for undertaking this study was to investigate organisational KMS implementation in selected MT companies in Namibia. The study was grounded on the outlined objectives in Chapter 1 and further discussed in the following sections. The fifth objective's issues are addressed in the summary and conclusion, which cover objectives one through four to avoid duplication.

### **7.2 Summary Of The Findings**

This section summarises the findings of organisational KMS implementation in selected MT companies in Namibia. The rationale for undertaking this study was to investigate the implementation of organisational knowledge management systems in selected MT companies in Namibia. The objectives as outlined in Chapter One are discussed in the following section. The issues about objective five, establishing organisational KMS challenges in MT companies in Namibia are combined with the summary and conclusion, addressing objective 1-4 to evade duplication.

#### **7.2.1 Knowledge Management Strategy**

The first objective of this study was to determine the organisational KMS strategies used by selected MT organisations. The underlying assumption was that organisational KMS strategies are critical to the effective implementation of organisational KMS for knowledge management practices in selected Namibian MT companies. The study revealed that the selected MT companies lacked an organisational knowledge management strategy and, in particular, for organisational knowledge management system. Additionally, the relevance of adopting and modifying corporate knowledge management strategies such as personalisation and codification for KM practice cannot be overemphasised. Furthermore, the findings indicated that senior management had a better awareness of what organisational KM is and that their operations are mostly guided by tacit and explicit approval. However, there was further confusion about whether KM should be housed inside the

department or within the Human Resource Development department. That shows the lack of understanding of the importance of KMS, in particular KM.

### **7.2.2 Knowledge Management System Infrastructure**

The second objective of the study was to determine organisational KMS infrastructure in selected the MT companies in Namibia. Findings showed that organisational KMS are available in most cases ICT general based used for the entire organisational undertakings including regional offices. This understanding was acknowledged with 52% of quantitative, 91% of qualitative respondents as well as ICT policies. Most respondents and participants agreed that organisational KMS infrastructure permits collaboration with 81.1%. Amongst the reasons given was that it is used by departments including employee online collaboration. The study showed that the set-up was mostly influenced by access to online central organisational repository, employee and customer portals systems, and documents, use of emails, customer relationship management and e-learning management systems. Furthermore, it was shown that organisational KMS abilities were critical for effective KMS usage, as OK, in particular, explicit, was the strongest ever more for each itself. Senior managers lacked an awareness of organisational KMS capabilities, which raised concerns about their readiness to oversee and steer organisational KMS for knowledge management practice.

### **7.2.3 Management Support for Knowledge Management System**

The third objective was to establish the level of support by senior management towards the implementation of organisational KMS in selected MT companies in Namibia. The study established that senior management support was important to the success of the organisational KMS. The support included organisational KMS (ICT) infrastructure, finance resource allocation, motivation, employee involvement and positive organisational culture. It was further established that management should be committed to support e-learning process for organisational KMS for KM practice. The performance of selected MT organisations in implementing organisational knowledge management systems is highly dependent on these factors for knowledge management practices, which may be classified as external and internal processes.



#### **7.2.4 Employee Perception towards Knowledge Management Systems**

The fourth objective of the study was to assess the perception of employees towards organisational KMS at MT companies in Namibia. The study established that implementing organisational KMSs with due diligence enhances access to and utilisation of KM on KMS. It was further determined that organisational knowledge management systems should be developed to encourage KM practice in order to influence workers' attitudes toward information sharing. Most respondents and participants agreed that employee attitudes affected organisational KM practices, such as their propensity to utilise organisational knowledge management material on platforms, incentive and reward systems, notably social networking, to improve organisational knowledge management practices. The use of knowledge identification aids and knowledge management systems was necessary to access information from formal sources such as repositories, internal and external experts and community practices. Furthermore, most respondents and participants agreed that trust was identified as critical for enhancing positive behaviour, promoting network relations, fostering positive relationships and mitigating conflicts and costs associated with implementing organisational KMS. The study pointed out that its positive attitude toward the usage was a critical factor in the success of organisational KMS for KM practice in selected MT companies. However, it was discovered that several Namibian MT policies neglected employee attitude as a major facilitator of organisational knowledge management in their own strategy.

### **7.3 CONCLUSIONS**

In reference to the findings of the study on organisational KMS implementation in selected MT companies in Namibia, the following conclusions are presented in reference to the outlined objectives of the study.

#### **7.3.1 Knowledge Management Strategies For Knowledge Management Systems**

In terms of examining the strategies employed by different selected MT companies in Namibia, this study examined whether selected MT companies adopted and adapted organisational KMS strategies such as personalisation and codification to achieve success in organisational KM practice. This study concludes that selected MT companies in Namibia employ an informal approach to organisational KMS, lacking in personalisation and codification strategy. The study also concluded that knowledge was a source of competitive advantage for selected MT companies.

### **7.3.2 Knowledge Management System Infrastructure**

The study concludes that MT companies have more ICT-oriented organisational KMS infrastructure. The current ICT infrastructure in MT companies facilitates information processing rather than knowledge management. The organisational KMS communication infrastructure is commonly used for online collaboration. E-learning tools are used for organisational KMS and KM practice. To support organisational KMS, MT companies use a variety of technologies, including customer relationship management systems, learning management systems, customer portal systems, and EDMS. Organisational KMS infrastructure and processes are based on a collaborative environment in relation to technology, culture, and structure. The KMS infrastructure is not formalised in relation to the personalisation and codification strategy. This could lead to increased system uncertainty, lower employee satisfaction, and more standardisation of system implementation and execution.

### **7.3.3 Management Support For Knowledge Management Systems**

The study concludes that senior management of MT companies should support and enhance the KMS by involving employees in its development and implementation. Investments in organisational KMS, such as a central repository, online report sharing, equipment, software, time, finances, and online meetings, are examples of the valuable support and assistance that senior management should provide. It was determined that management is responsible for enhancing the KMS through creation, sharing, transfer, storage, and application. Furthermore, the presence of established connectivity technology tools increased the likelihood that senior management would facilitate knowledge access, encourage innovation, and leverage knowledge through collaboration. Furthermore, management support comprises resource allocation, motivation, employee participation, and a positive organisational culture and structure. Management should also commit to supporting the e-learning process for organisational KMS as part of their KM practice.

### **7.3.4 Employee perception on knowledge management systems**

The study concludes that positive employee attitudes toward organisational knowledge management systems are critical for the organisation's KMS access and utilization. Furthermore, it is concluded that KMS should be built with employee input about considerable advantages, compatibility, diversity, performance expectancy and explanatory variables. Also, the study concludes that knowledge identification technologies for knowledge management systems are required to collect acceptable

OK from formal sources such as repositories, internal and external experts, and community practices. Similarly, trust was highlighted as crucial for knowledge management systems in relation to encouraging good behaviour, strengthening network connections, facilitating pleasant encounters and resolving disputes and expenses connected with organisational KMS implementation. The study concludes that organisational knowledge management systems and knowledge management practice are significantly influenced by staff sentimentalities. This includes a lack of motivation and trust, specialised benefits, frequent communication with senior management and a dearth of incentive mechanisms, most notably social networking, as possible challenges.

#### **7.4 Recommendations**

The study's findings, conclusions, SECI and TOE frameworks, and implementation framework inform its recommendations. The results demonstrated that a subset of MT companies adapt and adopt formal organisational KMS for KM practices. In addition, one of the objectives of the study was to propose a framework to enhance the organization's KMS implementation in selected MT companies in Namibia. These recommendations are also applied to MT companies in Namibia, KM practitioners, and KM scholarships, and include the following:

##### **7.4.1 Knowledge Management Strategies for Knowledge Management Systems**

The study recommends adapting and implementing a multidimensional knowledge management approach based on a mix of the SECI and TOE frameworks. The research claims that the efficacy of each organisational KMS approach is contingent upon the direct and indirect perspectives of the selected MT companies in terms of personalisation and codification. This is due to an overemphasis on codified information in electronic formats, while overlooking personalisation, which is critical for addressing employee wants and expectations on organisational KMS for KM practice. The focus should be on driving from tacit and explicit context to induce innovation. In selected MT companies, online social systems for effective and efficient organisational KMS for KM practice will assist in streamlining the identification, generation, capture, storage, sharing and classification of OK. The regulations of selected MT companies may be utilised to develop and implement an organisational KMS for knowledge management practice.

#### **7.4.2 Knowledge management system infrastructure**

The study recommends that selected MT companies develop organisational KMS infrastructure that maintains tangible and valuable tacit and explicit knowledge in the corporate network. Its organisational KMS infrastructure should embed structures and social arrangements that permit participants to learn from an online community of practice, in particular through collaboration. In that light, KM infrastructures are expected to be more effective in terms of real-time knowledge procedures integrated into the operational flow of organisational KMS in relation to the conversion, acquisition, creation, and sharing of knowledge. It is further important for MT companies to know that their KM infrastructure ought to combine social and technical perspectives that take into account how organisations learn, how they communicate and how they use information technologies such as intranets (weblogs, wikis), data warehouses, search engines, virtual space collaboration, groupware (electronic group discussions), workflow automation and computer-based training.

#### **7.4.3 Management support for knowledge management systems**

The study recommends that top management establish a beneficial support structure in the form of champions to educate and motivate staff members about the advantages of organisational KMS use in selected Namibian companies. This method should be promoted and strengthened in order to produce good results for organisational KMS strategy, including organisational KMS (ICT) infrastructure, financial resource allocation, motivation, employee participation and a positive organisational culture. Raising awareness and comprehension of organisational knowledge management concepts, particularly the critical nature of sharing tacit organisational knowledge across senior, middle, and employee levels, through in-house talks and workshops, as well as lobbying for a collaborative culture, are important supports for organisational KMS.

#### **7.3.4 Employee Perception on Knowledge Management Systems**

The study recommends that selected MT companies foster good employee attitudes toward organisational knowledge management systems (KMS) in order to encourage positive behaviour, build network linkages and facilitate pleasant interactions associated with KMS deployment. It recommends that mutual trust, specialised perks, regular contact with top management and incentive systems, most notably social networking, as potential enforcers of organisational KMS for KM practice.

## 7.5 Recommended Framework

The last objective was to develop a framework within which effective and successful implementation of organisational KMS would be optimised by selected MT companies in Namibia. The framework shown in Figure 26 was designed with the goal of establishing and maximising organisational KMS for KM practices throughout Namibia's selected MT companies. The framework takes into account the establishment of an organisational KMS strategy, laying the groundwork for the development of a consultative detailed implementation plan for selected MT companies. The framework's purpose should be to highlight critical measures to take in order to comprehend and take advantage of organisational KMS. The framework is designed to maximise employee consultation across the organisation's knowledge-based growth processes, including KMS infrastructure capabilities. According to the framework, senior management and employees are seen as the foundation for organisational KMS and formulating a strategy. Furthermore, selected MT companies will categorise individual employees' knowledge in relation to personalisation and codification at the same time they establish and improve organisational KMS practices through the use of ICT infrastructure for efficient knowledge sharing, transfer, dissemination, capture and acquisition.

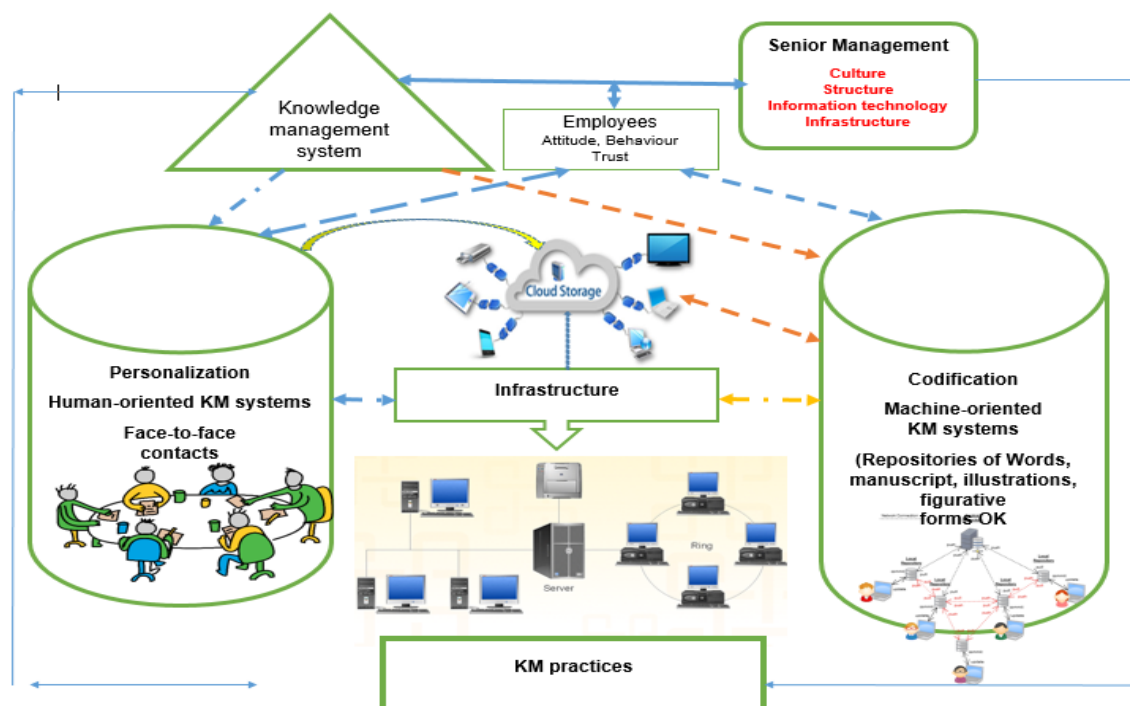


Figure 30: Framework for implementation of KMS (Researcher 2022)

The proposed framework on the implementation of organisational KMS for KM practises starts with the consultative development of a strategy in relation to senior management and employees as users of the organisational knowledge management systems. The framework points to these as important elements for the effective adoption and adaption of organisational KMS for KM practices. These elements are interconnected to each other, as depicted by arrows, to form the requisite connection or relationship between them to form a cohesive framework. These elements, or factors, are described below.

### **7.5.1 Senior Management**

Under this framework, this stage forms an initial start, where management support is so requisite to influence organisational KMS implementation for KM practices. Management is supposed to demonstrate influence and support in relation to the creation of an advantageous culture, structure and technology. The recommendation is that management makes decisions in reference to those key sub-elements in an effort to successfully implement an organisational KMS for KM practices.

- a. **Organisational culture and management:** MT companies should foster positive norms, values, and beliefs that help regulate employee behaviour and attitude in relation to organisational KMS for KM practices. For effective KMS implementation, it is crucial to increase awareness, understanding, motivation, benefits, and resources (finance) for KMS. At this stage, management will have to consider issues such as incentives (rewards), collaboration, and interaction in an effort to encourage employees to adopt or utilise the organization's KMS.
- b. **Organisational structure,** on the other hand, looks at issues such as interaction as per favourable organisational culture that looks at issues of collaboration in relation to the hierarchical structure of the organisation. This is in reference to the creation of formal and informal structures that will be used positively in creating networks of departments and employee groups in relation to (online) communities of practice. This section re-engineers the traditional structure of consultation to a more hybrid structure that takes into account elements of an organisational knowledge management system for knowledge management practices.

- c. **Technology:** At this stage, management consults with users to determine the types of technology that are required. Technology is directed to pursue knowledge management practises in relation to strategy with regard to tacit and explicit knowledge management in relation to OK processing, storage, collaboration, communication technologies and systems that look at organisational repositories, databases, warehouses, intranets and the internet. The systems make available technology that interprets data, text, manuscripts, illustrations, figurative forms and organisational knowledge.

### 7.5.2 Knowledge Management System Strategy

This framework suggests that organisations adopt and adapt pragmatism or hybrid organisational KMS strategy (personalisation and codification) for KM practices.

- a. **Personalisation** will be implemented on employees' face-to-face contact as outlined per organisational culture and structure between members of the (online) community of practice. This will depend on the organisation's services offered and the problem at hand in relation to controlling tacit OK.
- b. **Codification**, on the other hand, will involve processes of turning captured, created and acquired shared OK into an organisational repository, database and warehouse and controlling retrieval of OK through memory transformation.

### 7.5.3 Employee

Under this phase, the framework, indicates the overlapping consultation contacts between employees and the technology infrastructure. In order to create a sense of ownership in the organisational culture and structure that creates positive behaviour and attitude towards the organisational KMS for KM practice. This will be done via departmental encouragement using colloquia and roundtable discussions that take cognisance of equal participation, building teams, recognition, encouraging (online) communities, training and learning that respond to acquisition, creation, sharing, identification and classification of organisational knowledge (KM practice).

## **7.6 Implications of the Research for Theory, Policy and Practice**

The proposed organisational KM framework was designed to improve the organisational KMS for KM practices for the MT companies and can be a useful framework for future organisational KM studies. By adopting and adapting these recommendations, organisations will go a long way towards improving the way KMS are implemented as well as tackling current challenges in mobile telecommunication companies in Namibia. The biggest challenges associated with KMS implementation often originate from organisations' failure to consider strategy, managerial support, infrastructure and people. To successfully implement organisational KMS that value and promote creativity, accessibility, cooperation and knowledge exchange, leadership, reforms in relationships, organisational structures and employee consultation need to be effectively addressed. These issues may be addressed via this study's recommendations. This is because the research established a foundation for implementing a KMS in practice. The research, in general, contributes to the scientific literature on documents and reports.

## **7.7 Suggestions for Further Research**

Establishing how to deploy organisational KMS for KM practises is critical to the success of the OK practices' strategy. The field of KM, and more specifically, KMS in Namibia, is evolving. Future studies are suggested to get more insight into the changing notion of organisational knowledge management system implementation efforts. Thus, a suggestion is made to perform comparative research of different organisational KMS capabilities or techniques, taking into account the unique organisational culture of the private sector. Thus, in order to establish KMS efforts, it is critical to understand that organisational KM is a collective practice and system for leveraging OK or human intellects to induce innovation, but many organisations appear to lack an understanding of the challenges associated with new technologies and their application to employee behaviour.



## 7.8 Final Conclusion

This mixed-method research accomplished its objective of examining organisational KMS implementation for KM practices in a sample of Namibian mobile telecommunications companies. It demonstrated an awareness of organisational KMS for KM from the standpoint of senior, middle and frontline employees. The research established that selected MT companies in Namibia lack a defined plan for implementing organisational KMS for KM, a process that is influenced by workplace culture and unfavourable attitudes about organisational KMS among employees. It is further important that MT companies understand how management support for organisational KMS may help ensure their success in terms of developing a framework and ideas for how organisational KMS implementation can be improved. The analyses of data acquired from documents and respondents at the head office and regional offices of selected MT companies in Namibia do not allow for generalisation and do not represent the opinions of all private sector workers. Thus, although the findings of this research cannot be extrapolated beyond the mobile telecommunication companies in Namibia, they may be repeated in other MT companies. According to Maxwell (2021) and Patton (2015) a small sample size precludes the generalisability of conclusions since participants are selected based on their information richness. This case study adopted a mixed methods convergent design in particular, collecting data through a survey questionnaire and in-depth interviews and document analysis.

The research discovered that selected MT companies lacked an organisational KM strategy. In their organisational operations, these organisations used an informal approach to organisational KMS. According to the study's findings, a sizable proportion of respondents and participants agreed that an organisation's knowledge management system infrastructure, management support and employee attitudes toward knowledge management systems are critical factors in the success, adoption and adaptation of KMS. There were observed problems with organisational knowledge management procedures that relates to lack of motivation and a structured incentive system; a lack of commitment to organisational knowledge management systems in knowledge management practice; a lack of time; negative attitudes about frontline personnel; and culture. All respondents agreed that top management must demonstrate absolute commitment to the organisation's knowledge management system in order for it to thrive. The research makes suggestions for how to enhance

organisational knowledge management systems in selected Namibian mobile telecommunications companies, as well as a framework for implementing organisational knowledge management systems.

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**APPENDIX 1: Letter used to request approval to conduct the study at Mobile Telecommunications Ltd, Namibia**

P. O Box 32479  
Pionierspark  
Windhoek  
[nsala.meshach@gmail.com](mailto:nsala.meshach@gmail.com)

**01 December 2020**

Ms Monica Nehemia  
Chief Technical and Information Officer  
Mobile Telecommunications Ltd  
Windhoek  
Namibia

Dear Ms. Nehemia


**Re: REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT MOBILE TELECOMMUNICATIONS LTD (MTC) (STUDENT NUMBER: 64048985)**

I am kindly requesting for permission to conduct research at the Mobile Telecommunications Ltd (MTC) in Windhoek. I am a PhD student at the University of South Africa researching on "Knowledge Management Systems Implementation in Selected Mobile Telecommunication Companies in Namibia" in partial fulfilment of the requirements of a Doctor of Philosophy Degree. The study was granted ethical clearance by the Department of Information Science Research Ethics Committee on 24 July 2020 in compliance with the University of South Africa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

Senior Managers and below management are targeted research participants by this study through interviews, and questionnaires concerning KMS within your company. The study will go a long way in improving the way knowledge management systems are implemented as well as develop a framework that may be of use to mobile telecommunication companies in Namibia. I will share the study's findings with your organisation and the recommendations that the study will make may be adopted and adapted by your institution.

Attached are my ethical clearance, I will share research instruments upon (request) before data collection.

Sincerely yours



**Mitchell M. Mubuyaeta**  
UNISA PhD Student

+264812851726

## APPENDIX 2: Letter of approval to conduct the study at MTC Mobile Telecommunications Limited Namibia

MTC Mobile Telecommunications Limited

Corner of Mosé Tjitendero &  
Hamutenya Wanahepo Ndadi Streets,  
PO Box 23051, Windhoek, Namibia

T +264 (0) 61 280 2000

F +264 (0) 61 280 2124

16 February 2021

### TO WHOM IT MAY CONCERN

Sir/Madam,

#### LETTER OF AUTHORISATION TO CONDUCT RESEARCH

This letter serves as authorisation to Mr Mitchell Mubuyaeta to conduct the research project titled "Knowledge Information Management systems in MTC", in fulfilment of his Doctoral Degree of Philosophy in Literature and Information Science at the University of South Africa (UNISA).

Upon review of the request by the student, we are glad to offer Mr. Mitchell the opportunity to conduct his research at our organisation. All interviews, surveys, observations around the business and the distribution of questionnaires will be duly overseen by the researcher himself. However, the data collection is restricted to the questions the researcher applied for.

If you have any concerns or require additional information, please contact Paula Guedes via telephone on (+264 612802021)

Yours sincerely,



Monica Nehemia

Chief Technology & Information Officer

Directors: T. Mberirua (Chairperson), T. Muteka (Deputy Chairperson), E. Nashilongo, R. Shipiki, T. Gawaxab, W. Schuckmann, S. Galloway,  
Dr. L. Erastus (Chief Executive Officer), Vincia Cloete (Company Secretary)  
Company registration number: 94/458

   [mtc.com.na](https://www.mtc.com.na)

make the connection  




**Corporate Communications & Public Relations Office**

Head Office, 9 Judge JP Karuaithe Street  
PO Box 297, Windhoek, Namibia  
Tel: (+264 61) 201 2448  
Fax: (+264 61) 201 2074  
E-mail: [CommPR@telecom.na](mailto:CommPR@telecom.na)  
Website: [www.telecom.na](http://www.telecom.na)

01 December 2020

**TO WHOM IT MAY CONCERN**

Sir/Madam,

**LETTER OF AUTHORISATION TO CONDUCT RESEARCH**

This letter serves as authorisation to Mr Mishake Mitchell Mubuyaeta to conduct the research project titled "Knowledge management systems implementation in selected mobile telecommunication companies in Namibia: A Case Study of Telecom Namibia".

Upon review of the request by the student, we are glad to offer him the opportunity to conduct his research at our organisation. All interviews, surveys, observations around the business and the distribution of questionnaires will be duly overseen by the researcher himself.

The onus rests with the researcher to negotiate appropriate and relevant time schedules with Telecom Namibia's Corporate Communication department to conduct the research.

If you have any concerns or require additional information, please contact the Corporate Communication and Public Relations Department.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Nomvula Kambinda".

**Nomvula Kambinda**  
**Head: Corporate Communication & Public Relations**

Directors: Mr Jeremia Muadinhamba (Chairperson), Mr Fernando Somaeb (Deputy Chairperson)  
Ms Frieda Kishi, Ms Elizabeth Asino-Joseph, Mr Shiwana Ndeumyema  
Acting Chief Executive Officers: Mr Laben Hwilepo  
Acting Company Secretary: Ms Albertina Itano  
Reg. No. 92/282

## APPENDIX 4: Letter from the supervisor requesting permission to collect research data



University of South Africa

School of Interdisciplinary Research and Postgraduate Studies

P. O. Box 392

UNISA

0003

UNISA - Campus

Preller Street

Theo van Wijk Building - Room 04-02

Tel: +27 12 429 2832

04 September 2020

### TO WHOM IT MAY CONCERN

RE: **REQUEST FOR PERMISSION TO GATHER RESEARCH DATA-MR MITCHELL MISHAKE MUBUYAETA**

This is to confirm that Mr Mitchell Mishake Mubuyaeta is a Doctor of Litt et Phil (Information Science) candidate (Student Number 64048985) in the Department of Information Science at the University of South Africa (UNISA) and is conducting a research project titled “**Knowledge management systems implementation in selected mobile telecommunication companies in Namibia**” in partial fulfilment of the requirements of a Doctor of Philosophy Degree. He is working under the supervision of Professor Patrick Ngulube. His study requires that he gathers data from potential respondents in selected mobile telecommunication companies in Namibia. On that note, you are being kindly requested to assist him with permission to gather the necessary data from your organisation.

The study was granted ethical clearance by the Department of Information Science Research Ethics Committee on 24 July 2020 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The ethical clearance certificate obliges Mr Mishake Mitchell Mubuyaeta to ensure that the research project adheres to the values and principles expressed in the UNISA Policy of Research Ethics which among other things respect confidentiality, anonymity, integrity, honesty, informed consent and voluntary participation.

The study is intended to generate useful knowledge on knowledge management systems implementation in mobile telecommunication companies in Namibia and develop a framework that may be of use to mobile telecommunication companies in Namibia. The study’s findings will be shared with your organisation and the recommendations that the study will make may be adopted and adapted by your institution.

Kindly note that all the data that will be gathered from your institution will be used for research purposes and strict confidentiality will be upheld.

Your cooperation and assistance will be greatly appreciated.

For further questions or queries, you may contact the undersigned on the following contact details:  
Email: [ngulup@unisa.ac.za](mailto:ngulup@unisa.ac.za); Cell: +27 828527612.

Yours faithfully



Prof Patrick Ngulube  
Supervisor

**APPENDIX 5: Ethical Clearance Letter from UNISA Department of Information Science Ethics Review Committee**



**DEPARTMENT OF INFORMATION SCIENCE ETHICS REVIEW COMMITTEE**

24 July 2020

Dear Mr Mishake Mitchell Mubuyaeta

**Decision:**

**Ethics Approval from 24 July 2020 to 24 July 2024**

**DIS Registration #: Rec-20200724**

**References #: 2020-DIS-0021**

**Name: MM Mubuyaeta**

**Student #: 64048985**

---

**Researcher(s): Mr Mishake Mitchell Mubuyaeta**  
[64048985@mylife.unisa.ac.za](mailto:64048985@mylife.unisa.ac.za)  
+26 481 2851 726

**Supervisor(s): Prof P Ngulube**  
[ngulup@unisa.ac.za](mailto:ngulup@unisa.ac.za)  
012 429 2832

**Knowledge management systems implementation in selected mobile telecommunication companies in Namibia**

**Qualifications: Doctoral Study**

---



University of South Africa  
Pretorius Street, Muckleneuk Ridge, City of Tshwane  
PO Box 392 UNISA 0003 South Africa  
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150  
[www.unisa.ac.za](http://www.unisa.ac.za)

The *low risk application* was reviewed and expedited by the Department of Information Science Research Ethics Committee on 24 July 2020 in compliance with the Unisa Policy on Research Ethics and the Standards Operating Procedure on Research Ethics Risk Assessment. The proposed research may now commence with the provisions that:

1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy of Research Ethics.
2. Any adverse circumstances arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the Department of Information Science Ethics Review Committee.
3. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
4. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards the protection of participants' privacy and the confidentiality of the data should be reported to the Committee in writing, accompanied by a progress report.
5. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no. 4 of 2013; Children's Act no. 38 of 2005 and the National Health Act, no. 61 of 2003.
6. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data requires additional ethics clearance.
7. Research must consider rules for engagement that are in line with observing COVID 19 regulations.
8. No field work activities may continue after the expiry date of **24 July 2024**. Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

*The reference number 2020-DIS-0021 should be clearly indicated on all forms of communication with the intended research participants, as well as the Committee.*





Yours sincerely

A handwritten signature in black ink, appearing to read "Sketty". The signature is written in a cursive style with a large, looped initial 'S'.

Department of Information Science: Ethics Committee

## APPENDIX 6: Survey Questionnaire

### KNOWLEDGE MANAGEMENT SYSTEMS IMPLEMENTATION IN SELECTED MOBILE TELECOMMUNICATION COMPANIES IN NAMIBIA SURVEY QUESTIONNAIRE

#### Introduction

I am Mitchell Mubuyaeta, PhD Student, University of South Africa, South Africa and Chief Development Planner in the Ministry of Gender Equality and Child Welfare in Namibia, currently conducting a study on knowledge management systems implementation in selected mobile telecommunication companies in Namibia.

The purpose of the study is to investigate knowledge management system implementation and use in selected mobile telecommunication (MT) companies in Namibia. The outcome of the research may assist MT companies and other organisations with the information required to manage knowledge, knowledge management systems infrastructure that enables its adoption, implementation and use to induce innovation for a competitive edge.

This questionnaire intends to collect primary data on knowledge management systems from middle-level employees in mobile telecommunication companies in Namibia. Participation in the study is voluntary, and the information provided will be treated with the utmost confidentiality. It is for those reasons stated above that I request you to complete this questionnaire to collect primary data for this study. Completion would approximately take 35 minutes of your time. Please answer all questions in all sections by ticking the appropriate box that corresponds to the answer you see as most correct.

I kindly request that all responses be submitted by July 30, 2021.

If you have any inquiry, please feel free to contact me at [misshakemm@gmail.com](mailto:misshakemm@gmail.com) or [64048985@mylife.unisa.ac.za](mailto:64048985@mylife.unisa.ac.za)

Sincerely yours,



**Mitchell M Mubuyaeta (Mr)**

PhD Student, University of South Africa  
Tel (work): +264 61 2833188  
Cell: +264 81 285 1726

**COMPLETE THIS QUESTIONNAIRE AS DIRECTED AS PER INSTRUCTIONS BELOW**

**SECTION A**

**Instructions**

- Questionnaire is due 30 July 2021.
- Please indicate your response by ticking (X) in the appropriate boxes as provided.
- Write in the provided space(s) where appropriate. If more space is required, please make use of a separate piece of paper.

1. Demographic Information: Please indicate your age group \*

- 18 – 20 years
- 21 – 25 years
- 26 - 30 years
- 31 - 35 years
- 36 – 40 years
- 41 - 45 years
- 50 and Above

2. Please indicate your sex

\*

- Female
- Male
- Prefer not to say
- Other...

2. Please indicate your highest academic qualification \*

- Diploma
- B. A Degree
- B. A Degree Hons
- Master's Degree
- PhD
- Other...

3. For how long have you worked for your organisation? \*

- 0-12Months
- 2- 5 years
- 5-10 years
- 11-15 years

5. Please indicate the job title and department in which you work \*

Short-answer text

---

## SECTION B

### Knowledge Management Assessment

#### Knowledge Management Assessment

This is the understanding and discovery of knowledge; capturing and acquiring knowledge from a diversity of sources; selecting, filtering and classifying existing knowledge storing and saving knowledge; designing knowledge ontologies; adapting and/ or creating new knowledge; measuring and evaluating knowledge; visualising knowledge; distributing and/or transferring knowledge to others; sharing and applying knowledge; retaining and maintaining knowledge as an asset (Okemwa and Smith, 2009)

6. Does your company understand knowledge as a part of their competitive advantage? \*

- Yes
- No
- Don't know

7. Are you familiar with the concept of knowledge management? Please tick your answer. \*

- Yes
- No
- Other...

8. If 'YES' in question 7, please explain what is knowledge management

Long-answer text

---

9. Does your organisation have a knowledge management Department/Section? \*

- Yes
- No
- Don't know

10. Does your organisation/company have a knowledge management Policy/Strategy

- Yes
- No
- Don't know

11. If 'YES' in Question 10, please indicate the name of the document that contains your strategy:

Long-answer text

---

Measures Knowledge Management Systems Infrastructure.

Knowledge management systems infrastructure serves as an infrastructure capable of channelling, handling and securing knowledge in an organisation and provides the fundamental structure for knowledge management systems.

---

12. Does your company have the communications infrastructure used for knowledge management systems?

	Strongly Agree	Agree	Neutral	Disagree	Strongly agree
Company has knowledge management systems infrastructure to support knowledge management process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge maagement systems infrastructure supports easy access to knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our company has intranets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our company has	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can use knowledge management systems to download, upload and share knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Using knowledge management systems infrastructure, I collaborate with other departments, employees around our organisation. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

15. Indicate to what degree you agree or disagree with the following statements. \*

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I am confident in my knowledge shared on the departmental online database.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident in my ability to use knowledge management systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can evaluate online knowledge sources on knowledge management systems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. In our organisation, online discussions/meetings are conducted on some new concepts gathered from departmental services. \*

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Follow up to Question 16; Please indicate tool(s) use for online discussions/meetings

Short-answer text

.....

17. In our organisation, knowledge management systems usability are more user-friendly/system's interface. \*

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

18. In my organisation, sharing information amongst employees to solve problems is encouraged. \*

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

---

19. I share knowledge online with colleagues from my department. \*

- Yes
- NO
- Don't share

20. I share knowledge online with colleagues of other professional groups in my organisation. \*

- Yes
- No
- Don't share



21. I use knowledge on knowledge management systems to find the knowledge I need to reduce work errors. \*

- Yes
- No
- Other...

## Enablers to Knowledge Management Systems



Knowledge management systems enablers are fundamental elements that define the effectiveness and efficiency of knowledge management practice.

22. Using a tick, which of the following play an important role(s) to the efficiency of knowledge management systems set-up in your organisation? \*

- Senior management
- organisational culture
- Technology
- Strategies
- Other...

23. Indicate to what degree you agree or disagree with the following statements, regarding the attitude of senior management sees knowledge management systems in our company.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
very important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
provides full support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
supportive during implementation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
have lost interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
barely supports it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Have you received any knowledge management systems training for new technologies? \*

- Yes
- No
- Maybe

25. If "Yes", do you think the training was or is helpful? follow up from question 22 above.

Long-answer text

---

26. What do you consider as critical barriers to the effective implementation of knowledge management systems in your organisation, please explain? \*

Long-answer text

---

27. In our organisation, senior managers show interest in the implementation of knowledge management systems. Please indicate your answer below using either; \*

- Yes
- NO
- Other...

---

28. Can you share problems that you always encounter in using knowledge management systems? \*

Long-answer text

---

29. I have observed that senior managers see knowledge management systems as long-term organisation investment. \*

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

30. I was involved during the design as well as implementation stages of knowledge management systems in our organisation. \*

- Yes
- NO

Follow up to Question 30. Please mention at which level were you consulted during the implementation of knowledge management system in your organisation.

Long-answer text

---

31. In our organisation, knowledge management systems implemented supports the classification of knowledge. \*

- YES
- No
- Don't know

32. In our organisation, knowledge classification organises knowledge correctly and automate organisation workflows. \*

- Yes
- No
- Dont Know

Referring to question 32, Please indicate your answer in the table below using either. \*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagr...
Get correct info...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Classify knowle...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
streamline tax...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discover specif...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
atomate data r...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protect sensitiv...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. Knowledge classification assists our organisation to solve challenges in , \*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagr...
mitigating the ri...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
realizing the ful...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
increasing emp...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
passing compli...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Knowledge management strategy for knowledge management systems



Knowledge management strategy designates the inclusive methodology adopted by an organisation to support the management of knowledge resources and capabilities based on the intellectual request.

34. My organisation uses knowledge management systems that enable knowledge. Using the options below please indicate what knowledge management strategy mostly used for the implementation of knowledge management systems in your organisation? \*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagr...
Knowledge Sha...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge Doc...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge Cap...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Knowledge Acq...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Referring to question 34, Please specify other than what is mentioned above in question 31. \*

Short-answer text

---

35. In my organisation, knowledge management systems help to improve employee(s) performance \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

36. In my organisation, knowledge is accessible timely on knowledge management systems \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

37. In my organisation, the organisational structure allows and facilitates its people to accomplish their task \* according to the knowledge management services.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

38. My organisation has knowledge management systems (electronic database) which make knowledge management practice easier. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

40. My organisation uses the following knowledge management systems tools. Please indicate your answer in <sup>\*</sup> the table below using either

	Strongly agree	Agree	Neutral	Disagree	Strongly disagr...
Electronic user ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Document man...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Searching for k...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-learning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Referring to question 40, Please list any other knowledge management systems tools which your organisation <sup>\*</sup> uses which are not listed above.

Long-answer text

.....

41. My organisation uses the Knowledge map for the following. Please indicate your answer in the table <sup>\*</sup> below using either

	Strongly agree	Agree	Neutral	Disagree	Strongly disagr...
Online meeting...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yellow page, i.e...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organisational ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



43. My organisation uses management support to seek improvement of knowledge management systems. \*

Please indicate your answer by ticking one option only.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Necessary infra...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support the cre...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop and re...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Referring to question 43, Please list any other indications that show that your organisation uses management support to knowledge management systems that are not listed above \*

Long-answer text

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44. Senior management are likely to ease access to information, encourage innovation, through implemented knowledge management systems \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

45. Does senior management committed to support a online learning environment in your organisation? \*

- Yes
- No
- Maybe



46. Indicate to what degree you agree or disagree with the following statements that your organisation uses knowledge management systems for knowledge management practice. \*

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree...
The utilisation ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
knowledge man...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The ability of k...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Able to apply k...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Referring to question 46, Please list any other indications that show that your organisation uses knowledge management systems for knowledge management which are not listed above in question 41. \*

Long-answer text

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47. In my organisation, knowledge management systems increase organisational productivity. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

48. I am willing to share knowledge with my colleagues using knowledge management systems tools. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

49. Knowledge management systems designed to promote knowledge sharing has an effect on employee's attitude towards sharing knowledge \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

50. In my organisation, knowledge management systems and their practices were clearly defined. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

51. Assess yourself favourably on how you store knowledge in three different iCloud structure (database) on knowledge management systems. \*

	Never	Very infrequently	Sometimes	Frequently	Always
Private databas...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shared databas...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
department dat...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Referring to question 51, Please specify if there is any other place that your organisation uses to store content on knowledge management systems which is not listed above \*

Long-answer text

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52. In my organisation, implemented knowledge identification support knowledge management systems in accessing knowledge from formal sources such as repositories, internal and external experts, and community practices. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

53. Knowledge creation and capture support knowledge management systemsPlease indicate your answer in <sup>\*</sup> the table below using either

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

54. In our organisation, online knowledge storage support knowledge management systems. <sup>\*</sup>

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

---

55. Indicate to what degree you agree or disagree that these systems are commonly used for managing <sup>\*</sup> knowledge in your company at different managerial levels in your organisation

	Strongly agree	Agree	Neutral	Disagree	Strongly Disagr.
Content Manag...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
executive know...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
management in...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

...

56. Knowledge management systems that capture, store and improve access to knowledge was established \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

...

57. Trust was built to improve positive behaviour, encourage network relations, create good relations and reduce conflicts and cost \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

...

58. I believe that both types of knowledge (tacit and explicit) are significant to the future development. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

59. Senior management encourages employees to improve their knowledge by learning new knowledge stored online. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

60. Knowledge management systems use clear techniques for acquiring new knowledge \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

61. In my organisation, updating mechanisms is carried out to avoid outdated content in knowledge repositories. \*

- strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

62. In my organisation, knowledge repositories is managed using rules for contributions knowledge management systems functionalities for knowledge retrieval, and indexation of explicit knowledge are implemented. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

63. In my organisation, knowledge sharing support knowledge management systems. Please indicate your answer in the table below using either \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

64. In my organisation, there is a strong investment in knowledge sharing functionalities in order to distribute personalised knowledge to other employees (users). Please indicate your answer in the table below using either \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

65. Indicate to what degree you agree or disagree with the, that in my organisation, implemented knowledge <sup>\*</sup> management systems focuses on informal communication and collaboration functionalities which allows for the development of a shared understanding and human relationships via personal channels

	Strongly agree	Agree	Neutral	Disagree	Strongly disagr...
messaging	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
online chat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
online meetings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
discussion foru...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
application sha...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
team rooms for...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

66. In my organisation, knowledge management systems have clear strategies for storing online knowledge <sup>\*</sup> assets.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree



67. In my organisation, implemented online knowledge classification support knowledge management systems. Please indicate your answer in the table below using either \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

68. In my organisation, knowledge management systems implementation is compatible with organisation's situation as well as operational practices. Please indicate your answer in the table below using either: \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

69. In our organisation, necessary hardware, software and infrastructure for knowledge management systems are in place before the implementation of knowledge management systems. Please indicate your answer in the table below using either: ^

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

70. In our organisation, different departmental employees have necessary technical skills/ knowledge to use knowledge management systems tools/instruments. Please indicate your answer in the table below using either: \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

71. In our organisation, different departmental employees have necessary technical skills/ knowledge to use knowledge management systems tools/instruments. Please indicate your answer in the table below using either \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

72. If your answer is YES, question 71, Indicate if you believe that sufficient time was provided during the training on the use of knowledge management systems. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

73. Do you believe that sufficient resources (expertise, equipment etc) invested for training of all departmental employees on using knowledge management systems was enough. \*

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

---

74. What in your view are the most important benefits from a good implementation of knowledge management systems for knowledge management practice in your organisation? \*

Long-answer text

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75. What is your view are impediments to knowledge management systems in your organisation? \*

Long-answer text

---

Rate the quality of knowledge management systems in your organisation \*

	Poor	Fair	Average	Good	Excellent	Not applicab...
The amount ...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The quality o...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
System's abil...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My supervis...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My perceptio...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## **APPENDIX 7: Consent Note and Interviews Schedule**

### **RESEARCH TOPIC: KNOWLEDGE MANAGEMENT SYSTEMS IMPLEMENTATION IN SELECTED MOBILE TELECOMMUNICATION COMPANIES IN NAMIBIA.**

#### **INTERVIEW SCHEDULE**

#### **INTRODUCTION**

I am Mitchell Mubuyaeta, PhD Student, University of South Africa, South Africa and Chief Development Planner in the Ministry of Gender Equality and Child Welfare in Namibia. I am currently conducting a study on knowledge management systems implementation in selected mobile telecommunication companies in Namibia.

The purpose of the study is to investigate knowledge management system implementation and use in selected mobile telecommunication (MT) companies in Namibia. The outcome of the research may assist MT companies and other organisations with the information required to manage knowledge, knowledge management systems infrastructure that enables its adoption, implementation and use to induce innovation for a competitive edge.

I wish to thank you for granting me this opportunity to discuss knowledge management systems implementation in selected mobile telecommunication companies in Namibia. The study used interviews to collect primary data and will approximately take 30 minutes of your time. Participation in the study is voluntary, and the information provided will be treated with the utmost confidentiality.

I would like to seek your permission to take part and use a tape recorder during the interview. With that stated and your consent, our discussion will be tape-recorded, and I will be taking notes in order to ensure that information provided is captured correctly.

#### **SECTION A**

**Date and time**.....  
**Place**.....  
**Job title** .....

**Experience in current position**.....  
**Sex** .....

**Highest level of education** .....

## SECTION B

### 1. Knowledge Management Assessment

This is the understanding and discovery of knowledge; capturing and acquiring knowledge from a diversity of sources; selecting, filtering and classifying existing knowledge storing and saving knowledge; designing knowledge ontologies; adapting and/ or creating new knowledge; measuring and evaluating knowledge; visualising knowledge; distributing and/or transferring knowledge to others; sharing and applying knowledge; retaining and maintaining knowledge as an asset (Okemwa and Smith, 2009)

- a) Can you share with me your understanding of Knowledge?
- b) Briefly share with me your understanding of knowledge management.
- c) In what ways, if any, has your organisation adopted or/and apply knowledge management?
- d) What do your employees rely on to solve or embarking project/s?
- e) What is your understanding of the phrase 'knowledge management systems'?

### 2. Policies and legal framework for knowledge management

- a) Does your organisation have a knowledge management policy?
- b) If 'YES' in what ways is your organisation implementing knowledge management policy to support knowledge management systems?
- c) The *Namibia Vision 2030* and the *National Development Goal Number Five* (NDP5) refer to a knowledge-based society. In what ways, if any, is your organisation contributing to this vision?
- d) Namibia National Research Science and Technology Act No. 23 of 2004 emphasis the use of technology knowledge-based society. Briefly, can you share with me how your organisation promotes and develop research and the use of science and technology in Namibia?
- e) In what way, if any, do employees in your organisation use knowledge management to promote innovation in your organisation?
- f) Do you think that the Namibia information communication and technology policy has achieved what it set out to do, including supporting mobile companies?

### 3. Knowledge Management System infrastructure

Knowledge management systems infrastructure serves as an infrastructure capable of channelling, handling and securing knowledge in an organisation and provides the fundamental structure for knowledge management practice.

- a) Does your organisation have proper knowledge management systems infrastructure to support knowledge management practices? If 'YES', Explain
- b) Does your organisation have a knowledge repository? If yes, what is it and used for?
- c) May you share with me the tools that your organisation uses to facilitate knowledge management system?

**4. Plans or methodologies employed by Senior Managers to support knowledge management systems implementation in mobile telecommunication companies in Namibia.**

- a) From your experience, how would you describe the current level of collaboration within your department in terms of using knowledge management systems?
- b) What knowledge creation, sharing and application policies and practices, if any, currently exist in your organisation?
- c) What are the tools, methods and techniques, if any, used for knowledge creation, sharing and application in your organisation?
- d) In your view, what resources are required to implement knowledge management systems
- e) What method(s) do you use to tap into the knowledge of those leaving or retiring from your organisation?
- f) Does your organisation give incentives for variation of knowledge management systems use?
  
- g) In what ways does the organisational culture of your organisation support and recognise the importance of exchanging knowledge and experiences between the employees using knowledge management systems?

**5. Senior managers support for knowledge management systems.**

**5.1**

- a) In what ways, if any does your organisation's administration support the efforts to provide knowledge management systems?
- b) In what ways, if any, does your organisation provide financial support to build and develop knowledge management systems in various departments?
- c) Can you share with me the ways through which your organisation support and encourage employees to document knowledge for sharing (e.g., in consultancy reports, research, portfolios, study cases, computer applications and programmes)?
- d) What support if any, is offered by your organisation in terms of knowledge management systems implementation and use?
- e) Are your employees aware of the importance of proactively managing knowledge assets using knowledge management systems? If so, in what ways do they show this awareness?
- f) In what ways, if any does your organisation foster an environment where employees have a trust that their knowledge is valued when stored in knowledge management systems?
- g) What are your views on the use of knowledge management systems?
- h) Does knowledge management systems affect your employee/s performance?
- i) In what ways, if any do you see the adoption of knowledge management systems improving employees' performance, i.e. enhancing capacity and skills)

**5.2 Perception of employees towards the usability of knowledge management systems.**

- a. Can you share with me your observations of the attitude of your employees towards the use of knowledge management systems in your organisation?
- b. Can you share with me the difficulties that your organisation encounters in using knowledge management systems?

**6. Barriers and enablers to knowledge management systems in mobile telecommunication companies in Namibia.**

- a) What are the factors that enable knowledge management systems within your department or the organisation in general?

- b) Can you share with me any knowledge management systems challenges in your organisation?
- c) In what ways, if any, do you use knowledge management systems tools to enhance knowledge management practices in your organisation?
- d) In your view, what are the barriers to knowledge management systems in your organisation?
- e) Briefly explain if the use of knowledge management systems benefits your organisation in terms of knowledge management practices.

**7. Level of use of knowledge management systems in MT**

- a) Can you share with me your views on the use of knowledge management systems in improving performance in your organisation?
- b) Does your organisation have an online facility that your staff use to collaborate and interact? If YES, how effective is it?
- c) Have you experienced a situation where a staff member has been reluctant to share knowledge? If YES, what did you do about it?
- d) It has been said that knowledge management systems usage has a positive effect on the firm's innovativeness. Do you agree with this averment? Explain your answer?

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**END**

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