Developing a knowledge sharing strategy for a South African IT consultancy

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Declaration of Originality

I, **Daniëlle Stuart**, declare that this dissertation titled ***Developing a Knowledge Sharing Strategy for a South African IT Consultancy*** which I hereby submit for the degree **Master of Information Science** at the University of Pretoria, is my own work and has not previously been submitted for a degree at any tertiary institution. I declare that I have received the required research ethics approval to conduct this research and that the required ethical standards were observed while conducting this research.

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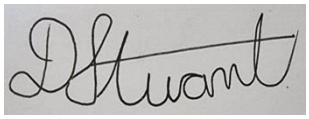

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Abstract

Information Technology (IT) consultants find themselves in a fast-paced, fast-changing environment where client satisfaction, project success, and problem solving are their greatest responsibilities. Because of the characteristics of this environment, there is a need in the IT consultancy industry for effective knowledge sharing, to assist their consultants to solve problems faster, therefore creating better products and solutions in shorter lead times. In order for knowledge sharing to be more effective, a knowledge sharing strategy can be implemented, providing guidelines to consultancies on how to effectively implement knowledge sharing and create a knowledge sharing culture that suits their needs.

The focus of this study was therefore to create such a knowledge sharing strategy by investigating what would be included in a strategy, what the benefits of a knowledge sharing strategy is, and what could hinder consultants from sharing their knowledge. Qualitative data was collected through semi-structured interviews with the consultants from the IT consultancy, with the intention to investigate their current knowledge sharing habits and needs, while literature was also consulted to determine the current practices within similar industries. The outcome of the data and literature analysed lead to the development of a knowledge sharing strategy for the IT consultancy where the research was conducted. This strategy serves as a guideline for IT consultancies to combine People, Processes, Technology, and Governance in order to change their knowledge sharing practices to suit the needs of their consultants.

In summary, this study concludes with the development of a customised knowledge sharing strategy, based on a known knowledge management framework, with the intention to increase the IT consultancy's ability to deliver better products and enhance problem-solving abilities of their IT consultants.

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1. Background and Introduction

1.1 Introduction

The information technology (IT) consulting industry is a fast-paced environment where consultants are under constant pressure to produce swift, affordable, and innovative solutions for their clients (Dingsøyr, 2002, p. 1). To achieve these goals, consultants need to gather and share knowledge with their colleagues to deliver more productive and efficient work (Klanwaree & Choemprayong, 2019, p. 441). Such effective knowledge sharing becomes even more crucial because, in the age of information, knowledge plays an essential role in a company's ability to stay competitive (Kamasak & Bulutlar, 2010, p. 307). On the other hand, companies cannot use their knowledge to the fullest extent without proper knowledge management practices. According to Sokhanvar et al. (2014, p. 1825), knowledge management practices are crucial for companies that focus on projects, such as IT consultancies, considering that they can prevent consultants from redoing work or losing knowledge after projects.

Knowledge management not only entails the safe-keeping of knowledge but also consists of varying activities as seen in the definition by the Gartner Group: 'knowledge management' "promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all of an enterprise's information assets" (Gartner Group, 2021); and it also includes "the tacit, uncaptured knowledge of people" (Duhon, 1998, p. 10). Not only should consultancy firms encourage their employees to share their knowledge to maintain a competitive advantage, but when colleagues collaborate and share knowledge, it can also contribute to the expertise of others and promote organisational learning. Kumaraswamy and Chitale (2012, p. 310) also clarified the importance of knowledge sharing in the following definition: "Knowledge sharing provides a basis for organisational learning, and to enhance organisational learning the model of knowledge sharing needs to be interactive and collaborative". Knowledge sharing can, therefore, be defined as "… a process where individuals mutually exchange their implicit (tacit) and explicit knowledge to create new knowledge" (Kamasak & Bulutlar, 2010, p. 307).

Considering the significant role that knowledge plays within a consultancy, this study aims to develop a knowledge sharing strategy for a specific IT consultancy in South Africa to enhance their knowledge sharing and project delivery.

1.2 Background

According to Ives et al. (1998, p. 269), "knowledge has always been central to human performance," so the act of knowledge management can be mapped through thousands of years. Although the concept of knowledge management has existed for quite some time, the term 'knowledge management' as it is used today originated in the management consulting industry in the 1980s (Koenig, 2018). At that time, organisations started to use intranets to organise and share information more easily within their organisations, selling these capabilities as 'knowledge management' products to other companies (Koenig, 2018). From then, the field of knowledge management began to grow rapidly, and by the early 2000s, there were already thousands of publications about knowledge management (Wallace, 2007, p. 5).

Through studying various definitions of knowledge management, this practice can be divided into different knowledge activities that include creating, retaining, and transferring knowledge (Argote et al., 2003, p. 572). Through this, eight of the most prominent knowledge management activities have been identified by various authors (Yip et al., 2012, p. 16-18):

- knowledge identification,
- knowledge acquisition,
- knowledge application,
- knowledge sharing,
- knowledge development,
- knowledge creation,
- knowledge preservation, and
- knowledge measurement.

This study specifically focuses on the knowledge management activity of knowledge sharing.

According to Wallace (2007, p. 109-110), there is no specific origin for the term 'knowledge sharing'; however, the advancement of libraries and other information systems could be the earliest examples of knowledge sharing utilised to enhance the growth of organisations. As was noted before, knowledge sharing was defined by Kamasak and Bulutlar (2010, p. 307) as an activity that shares either tacit or explicit knowledge. Tacit knowledge enables individuals within organisations to know how to use a specific skill (Bryant, 2005, p. 320) (also referred to as 'technical knowledge'), but on a personal level, tacit knowledge can also involve the beliefs of people and how they interpret their surroundings (also known as 'cognitive knowledge') (Smith, 2001, p. 314). Tacit knowledge within organisations determines "how [organisations] make decisions and influence the collective behaviour of their members" (Smith, 2001, p. 314). Explicit knowledge, on the other hand, could be defined as "know-what," and can be found in, for example, manuals, databases, information systems, and books (Smith, 2001; Bryant, 2005). The tacit knowledge in organisations can be shared by employees' knowledge conversion through either externalisation, which can be achieved by documenting their own knowledge and making it explicit, or socialisation, which can be achieved through interacting with colleagues and practically showing them how to perform certain skills (Bryant, 2005, p. 324). Knowledge sharing and conversion have also proved to be advantageous for IT consultancies because this allows consultants to (Dingsøyr, 2002, p. 143):

a) receive advice on starting projects,
b) find solutions faster,
c) avoid redoing other consultants' work,
d) find experts within the company, and
e) develop competencies in certain areas.

Thus, knowledge management, knowledge sharing, and knowledge conversion are fundamental to organisations and impact organisational learning. According to Lloria (2008, p. 79), tacit knowledge and learning are crucial to knowledge management; the objectives of this practice cannot be met without individuals within organisations participating in knowledge management activities and sharing the goal of exchanging knowledge and learning something new. Some definitions of organisational learning have a strong focus on the behaviour of individuals within organisations. Vera et al. (2011, p. 155) defined 'organisational

learning' as "… the process of change in individual and shared thought and action," while Reynolds and Ablett (1998, p. 26) offered the following definition: "organisational learning is where learning takes place that changes the behaviour of individuals or groups within the organisation." Other definitions by the same authors also focused on explaining the relationship between organisational learning and learning organisations: "Learning organisations respond to … changes in the environment by proactive organisational learning" (Reynolds & Ablett, 1998, p. 26), and "a learning organisation is a place … where patterns of thinking are broadened and nurtured … and where people are continually learning to learn" (Vera et al., 2011, p. 155).

Multiple authors also connected organisational learning with the field of knowledge management, including the activities it involves (Al-Adaileh et al., 2012; Vera et al., 2011; Argote, 2005; Reynolds & Ablett, 1998). Of particular interest to this study, the research by Al-Adaileh et al. (2012, p. 486-487) focused on how knowledge conversion can influence organisational learning and created four hypotheses for how Nonaka's SECI model (which refers to socialisation, externalisation, combination, and internalisation) can be used to implement organisational learning. The first hypothesis stated that socialisation can help individuals learn more about processes and structures within an organisation, thereby contributing to organisational learning. The second hypothesis focused on how externalisation can enable individuals to contribute explicit knowledge to their whole team that indirectly contributes to the learning for the whole organisation. With the third hypothesis, Al-Adaileh et al. explained how combination has to do with the reusing existing knowledge to create new explicit knowledge, which can then be communicated and shared throughout an organisation. Last of all, the main focus of internalisation is to learn through observation, which can contribute to an individual's expertise. Once this individual has acquired the proper skill and experience, they can contribute to the knowledge of others in their team and add to organisational learning.

In contrast, the research by Vera et al. (2011, p. 162) and Reynolds and Ablett (1998, p. 26) aimed to describe the relationship between organisational learning and knowledge management with a focus on knowledge management activities. According to Vera et al. (2011, p. 162), where organisational learning focuses on changing the behaviour of individuals with the new knowledge they have, knowledge management's focus lies on the activities and

actions that are performed with this new knowledge. Reynolds and Ablett (1998, p. 26) also state that organisational knowledge can lead to activities, such as individuals sharing knowledge with each other, transferring knowledge to each other, and acquiring new knowledge. Overall, the research by these authors also agrees with the study of Argote (2005, p. 43): Organisations acquire knowledge through learning but need knowledge management to leverage the knowledge they have obtained. Therefore, learning organisations cannot exist without organisational learning, strongly intertwining these two concepts with the field of knowledge management and with knowledge sharing.

1.3 Problem Statement and Research Questions

Considering the aforementioned introduction and background, knowledge sharing and knowledge conversion play a significant role in the success of IT consultancies. Ensuring that their consultants share knowledge and convert their tacit knowledge to explicit knowledge is crucial for these firms to learn from others' mistakes, aiding them in successfully completing projects and acquiring a competitive advantage. The latter seems to hold excellent value in developing a knowledge sharing strategy for a particular IT consultancy in South Africa.

1.3.1 Research questions

This study aims to answer the following main research question:

What is required for a knowledge sharing strategy for IT consultants?

Sub-questions that support in answering the main research question:

1. RQ 1: How can knowledge sharing be defined?
2. RQ 2: What are the benefits of sharing knowledge?
3. RQ 3: What factors can hinder knowledge sharing?
4. RQ 4: What are the most important aspects of a knowledge sharing strategy?
5. RQ 5: What current knowledge sharing practices are used in the chosen IT consultancy firm?

1.4 Aims, Objectives, and Rationale

1.4.1 Aims and objectives

This study aims to develop a knowledge sharing strategy for the chosen IT consultancy in South Africa to encourage consultants to share their tacit knowledge so that others can benefit from new knowledge for their own projects. This collaborative learning will direct consultants to who in the company has the knowledge they need, thereby saving them time by eliminating searches for knowledge from other sources. This also will possibly lead to faster problem solving.

Additionally, this study also intends to add value to the fields of Information Science and Knowledge Management by providing academics and researchers with a practical point of view on knowledge management and how it can be implemented in the IT industry. This research strives to contribute to and enhance the existing research on knowledge sharing, particularly within IT consultancies in South Africa. Additional objectives for this study also include how knowledge sharing can benefit IT consultancies, which can hinder knowledge sharing within IT consultancies, and which factors are crucial to the development of a knowledge sharing strategy.

1.4.2 Rationale

According to Becerra-Fernandez and Sabherwal (2010, p. 10), knowledge management cannot be successful if users do not utilise the technological infrastructures available to them, nor if they do not share their knowledge with others. Therefore, the rationale of this research comes from a need for knowledge sharing to prevent rework, enable faster project delivery, and overcome knowledge sharing hindrances which has been identified within the selected IT consultancy.

Although this specific consultancy does have infrastructures in place for knowledge management, there is still a need for users to operate and contribute towards these portals and intranets. Sharing knowledge with colleagues will not only contribute to the expertise of others but also aid in problem solving. With this need identified, a knowledge sharing strategy will trigger more efficient knowledge sharing and better knowledge management practices.

1.5 Concept Clarification

This section clarifies the understanding and usage of the fundamental concepts that are frequently used during this study. These concepts are: 'strategy', 'practice', 'knowledge management', and 'knowledge-' '-sharing', '-transfer', '-distribution', and '-exchange'.

1.5.1 Strategy

According to the Cambridge Dictionary (2024), a strategy is defined as "the way in which a business … carefully plans its actions over a period of time to improve its position and achieve what it wants." Greiner et al. (2007, p. 5) discusses strategies in terms of knowledge management strategies that aim for collecting, storing, and sharing tacit and explicit knowledge via databases or communication channels; in this study, a 'knowledge sharing strategy' refers to the actions that can be taken by the chosen IT consultancy to improve the knowledge sharing of their consultants and, thereby, improve their competitive position. These actions encompass people, processes, technology, and governance as will be discussed in Chapter 2.

1.5.2 Practice

For this study, the definition of a 'practice' is essential in identifying the significant practices of knowledge sharing that are performed by IT consultants. The Oxford English Dictionary (2024) defined a 'practice' as an "activity or action considered as being the realisation of … theory." Therefore, 'practices' of knowledge sharing involve the continuous actions that will be performed by consultants to share their knowledge.

1.5.3 Knowledge management

According to Argote et al. (2003, p. 572), 'knowledge management' depends on numerous activities that include creating, retaining, and transferring knowledge. Within the field of Information Science, knowledge management is also concerned with giving organisations a competitive edge by providing access to knowledge that can help workers to be more effective (Kebede, 2010, p. 421).

1.5.4 Knowledge sharing

'Knowledge sharing' is defined as when "individuals mutually exchange their (tacit) and explicit knowledge to create new knowledge" (Kamasak & Bulutlar, 2010, p. 307). Knowledge sharing plays a key role within organisations to "enable people to capitalise on existing knowledge bases residing within and outside the organisation" (Carmeli et al., 2013, p. 96), which enables an organisation to improve its products and services.

1.5.5 Knowledge transfer

In a study conducted by Bonnie and Dervin (2009, p. 235-243), 'knowledge transfer' is described as transferring knowledge from one entity to another, although it is also emphasised that reciprocal knowledge transfer is more successful than knowledge shared only from one person to another. This definition was chosen for the study as it emphasises that knowledge should flow between people and should not be isolated, which is an important aspect throughout the development of a knowledge sharing strategy.

1.5.6 Knowledge exchange

Milton and Lambe (2019, p. 434) defined 'knowledge exchange' as knowledge that is shared between multiple people where "everyone is a contributor and everyone is a learner."

When comparing the definitions of knowledge sharing, transfer, and exchange, it can be concluded that these concepts are similar in that they emphasise that knowledge is not only something to receive but also something to provide in return.

1.6 Research Design and Methodology

1.6.1 Research paradigm

According to Pickard (2017, p. 6), researchers have certain beliefs they hold towards research studies, and these beliefs guide their approach to conducting the research studies. These beliefs can be categorised as either positivist, postpositivist, or interpretivist.

Regarding the interpretivist paradigm, researchers believe that reality is established in context and that knowledge can be gained from talking to or observing research participants,

generating value in understanding situations (Vaishnavi & Kuechler,2007, p. 17). It is also believed that the data collected and interpreted through the interpretivist paradigm can be reused and applied in other contexts if the research results are described well enough (Pickard, 2017, p. 13). This paradigm is, therefore, appropriate for this specific study as the research focuses on understanding knowledge sharing practices within a specific company but could also be applied to, or changed within, other similar contexts.

1.6.2 Research approach

A 'research approach' is understood as a research plan "based on the nature of the research problem … the researcher's personal experiences, and the audiences for the study" (Creswell & Creswell, 2018, p. 2). There is a distinction between the three main research approaches: qualitative, quantitative, and mixed methods (Creswell & Creswell, 2018, p. 3). According to Yin (2016, p. 4-12) and Creswell and Poth (2018, p. 81-83), qualitative studies mostly aim to observe and study the behaviours and thinking patterns of individuals within a specific context. In qualitative studies, the researcher is directly involved with the participants by observing them, talking to them, or interviewing them within a specific setting (Creswell & Poth, 2018, p. 84).

Therefore, given that this study focuses on knowledge sharing of individuals within a specific organisation and endeavours to develop a knowledge sharing strategy for the organisation, a qualitative research approach is most appropriate for the specific study.

1.6.3 Research method

A 'research method' is defined as "the bounded system created by the researcher to engage in an empirical investigation" (Pickard, 2017, p. 99) and includes, for example, case studies, surveys, usability testing, and Delphi studies (Pickard, 2017, p. 99-149). With particular reference to the first listed item, Yin (2018, p. 38-39) suggested that case studies are used as a research method when the researcher aims to acquire insight into the context of a specific situation. Pickard (2017, p. 101-102) also stated that case studies should have boundaries to provide "in-depth knowledge" of the situation and not divert from the focus of the research. A case study, therefore, is appropriate for this study as it investigates knowledge sharing within a specific IT consultancy in South Africa.

Yin (2018, p. 60-63) also distinguished between two different case study designs (single case and multiple cases), and three different case study types (descriptive, explanatory, and exploratory). For this study, a single-case design has been chosen as it studies only one specific IT consultancy's knowledge sharing behaviour in South Africa. As for the case study type, a descriptive case study has been selected because the study aims to describe the current knowledge sharing behaviour of individuals within the chosen IT consultancy, as well as the data gathered used to develop a knowledge sharing strategy.

1.6.4 Study population and sample

A 'study population' identifies the larger group that can be studied, which is a South African IT consultancy in this case. The sample for this study takes a small sub-group of the study population to represent the larger whole. For this study, the sample is a department within the IT consultancy (Guthrie, 2010, p. 53). Sampling allows researchers to make some generalisations about the population, although researchers should steer clear of excessive generalisations because the sample cannot be representative of the study population (Pickard, 2017, p. 60). For this study, purposive sampling (a type of non-probability sampling) was used within the identified department of the IT consultancy. Consultants were chosen to partake based on a set of pre-determined criteria.

1.6.5 Methods for data collection

Researchers can choose between multiple different data collection methods that include interviews, questionnaires, observations, and focus groups (Dawson, 2019, p. 27-32). Mligo (2016, p. 83-84) identified an interview as a conversation between an interviewer and a participant, where the interviewer asks questions related to a specific topic in order to acquire insight into the participant's experiences and viewpoints. For this study, individual, semi-structured interviews have been conducted to ensure all participants are asked the same questions that allow for follow-up questions to be asked and extra information to be collected (Dawson, 2019, p. 28). The researcher selected the online collaboration application Microsoft Teams to conduct the interviews as most of the employees within the specific organisation work remotely, and this is the usual application used by the consultancy's employees to interact.

1.6.6 Data analysis

Various data analysis techniques exist for both qualitative and quantitative research approaches (Pickard, 2017, p. 268-269). Pickard indicated four main strategies for data analysis for a qualitative approach: phenomenological, ethnographic, narrative and discourse, and constant comparative analysis. Braun and Clarke (2012, p. 57) discussed thematic analysis as a fifth method of data analysis. A 'thematic analysis' is used for "identifying, organising, and offering insights into patterns of meaning across a data set" that "allows the researcher to make sense of collective or shared meanings and experiences." For this study, the researcher strives to analyse the collected data to identify specific categories and themes regarding knowledge sharing behaviour within the selected organisation, which will then inform the development of the knowledge sharing strategy. Therefore, a thematic analysis should be used for this study.

1.6.7 Reliability and validity

Creswell and Creswell (2018) emphasise the need for researchers to ensure that their findings will be reliable and credible through qualitative reliability and qualitative validity.

To achieve qualitative reliability, the researcher ensured that all the necessary steps and procedures taken during data collection and analysis were documented, while remaining objective throughout the study. During the data collection phase, the researcher recorded discussions with participants' consent to guarantee that all data and information remained accurate.

To achieve qualitative validity, the researcher verified that the sample used was of an appropriate size for the data collection required to identify the different themes surrounding knowledge sharing behaviour within the organisation. Participants in the study were asked to review the themes and categories, which were identified during data analysis, to ensure that the data is accurate and correct.

1.7 Ethical Considerations

Pickard (2017, p. 87-95) explained the different ethical considerations when conducting a research study: how the research participants or environment are accessed; informed

consent, anonymity, and confidentiality; and how participants are protected. This was used as a guideline for this study to ensure that all ethical aspects have been considered.

In this study, the following ethical considerations are in place:

a) **Acquiring access to the research environment:** Although the researcher is conducting this study within the organisation where they are employed, it is still important to ensure that the organisation is aware of the study and consents to certain aspects of the organisation being studied. A formal written letter of consent was obtained by the head of the organisation. The organisation's name is kept anonymous and is referred to as Company A.
b) **Informed consent:** Informed consent, in this case, applies to both the participants and the organisation that was studied. For participants, the researcher ensured they understood what the study was about and that none of the interview questions requested personal or confidential information pertaining to the individual. For the organisation, the researcher clarified that the organisation was aware of the study and consented to the study being conducted.
c) **Anonymity and confidentiality:** Pickard made the following distinction between anonymity and confidentiality: anonymity means that the individual participating in the research remains anonymous to everyone involved in the research, including the researcher. Confidentiality means that the researcher will protect the identity of the participant. In this study, anonymity would not be possible, since the researcher interviewed the participants directly and because some participants were the researcher's colleagues. Regardless, the researcher will keep the participants' identities confidential by not revealing any personal or identifiable information within the research results. This will also include the organisation and any organisational data that might be revealed by the participants during interviews.
d) **Protecting participants:** Pickard explained that research conducted on individuals should not be able to harm them physically or mentally. The questions asked and discussions within the interviews were, therefore, handled with sensitivity, with prior insurance that the participants understood exactly what was expected from them and what the study was about. The company under investigation is also protected; the researcher safeguarded all sensitive information about the organisation. The

researcher explained this so that the consultancy also understood exactly what the research entails, what data was collected, and what information would be made public.

1.8 Limitations

The limitations of this study are threefold: First, although there has been a lot of research conducted on knowledge management and knowledge sharing practices within IT consultancies, small- and medium-sized enterprises and software companies (all of which fit the criteria of the consultancy that are investigated in this study), limited literature could be found which focused solely on knowledge sharing strategies for these types of organisations. Next, this study focuses solely on one specific IT consultancy within South Africa, their knowledge sharing, and their knowledge management behaviours. The knowledge sharing strategy developed in this study, therefore, might not be directly applicable to all IT consultancies in South Africa. Finally, this study only seeks to develop a knowledge sharing strategy, so it does not aim to implement or rate the eventual success of the strategy.

1.9 Outline of the Study

Chapter 1: Background

Chapter 1 presents a background of the study and introduces what is investigated. It also forms the foundation of the study, in terms of formalising the problem statement, research questions, aims and objectives, concept clarification, research design and methodology, ethical considerations, and limitations to the study.

Chapter 2: Literature review

Chapter 2 gives an overview of the existing literature, which assists in answering the research questions. This includes research on knowledge sharing strategies and practices, knowledge management practices, and tools and techniques.

Chapter 3: Research methodology

Chapter 3 elaborates on the research design and methodology of this study, and includes further clarification on the research approach (qualitative), research method (case study), and

the data collection method used (interviews). It also provides a summary of the ways that reliability and validity have been assured throughout the study.

Chapter 4: Data presentation

Chapter 4 displays the data that was collected through the interviews. This is depicted as a summarised table for each interview question with the participants' answers.

Chapter 5: Data analysis, triangulation, and answered research questions

Chapter 5 provides the findings and analysis of the qualitative data collected throughout the literature review and the case study. This produces an overview of the data collected and answers the research questions.

Chapter 6: Findings and conclusion

Chapter 6 offers the final findings and conclusions to the study, describes the knowledge sharing strategy that was developed, and also provides recommendations and considerations for future research.

1.10 Conclusion

Chapter 1 provided the foundation for the study by describing an introduction and the background of the study, as well as the problem that the study seeks to resolve. The problem statement is supported by the research questions and sub-questions the study aims to answer and the objectives it seeks to achieve. The major concepts used in this study were also clarified to provide an understanding of what this study discusses. The research design and methodology, and ethical considerations were also discussed briefly, ending with the study's limitations and an outline of the entire study.

2. Literature Review

2.1 Introduction

This chapter presents the literature review for this study, which gathers and reports on existing information in the fields of knowledge management and knowledge sharing. This literature review aims to report the information that will assist with answering the research questions presented in Section 1.3, as well as to assist the researcher in knowing what information already exists and what information should be gathered during the data collection phase. Knowing what information is needed for data collection will not only assist in answering the research questions but will furthermore aid in developing a knowledge sharing strategy.

This chapter, therefore, focuses on literature that addresses knowledge, knowledge management activities, tools, and techniques, knowledge sharing strategies and hindrances, and will lastly touch briefly on how these concepts can influence organisational learning.

2.2 Data, Information, Knowledge, and Wisdom

Before discussing knowledge management and knowledge sharing, the link between data, information, knowledge, and wisdom (DIKW) is discussed and definitions for each are provided. Although this model is used to illustrate the relationship between these four concepts for context, the key focus of the study is on knowledge and knowledge sharing.

2.2.1 The DIKW hierarchy

Ackoff (1988, p. 3) presented 'data, information, knowledge, and wisdom' as an information or knowledge hierarchy, most frequently referred to as 'the DIKW hierarchy', with wisdom forming the top of the pyramid, followed by knowledge, information, and then data. Various authors (Jennex, 2009; Rowley, 2007; Frické, 2009) discussed the DIKW hierarchy as a foundation for information and knowledge management, understanding that it can define these four concepts and the relationship between them. Authors such as Frické and Jennex also argued that, although the hierarchy shows a link between these concepts on a basic level, it does not incorporate reality (Jennex, 2009, p. 1) nor context (Frické, 2009, p. 9). Jennex

(2009, p. 1-6), consequently, proposed a new DIKW hierarchy that is specifically aimed at knowledge management. The focus of this new hierarchy is on how humans constantly gather and process "data into information, knowledge, and wisdom" (Jennex, 2009, p. 2) and how the processing of data depends on the ability of humans to interpret and understand it. Furthermore, the processing of data into information, knowledge, and wisdom will eventually lead to learning and organisational learning, which indicates that the individual processing the data will change their behaviour based on the knowledge they have acquired. Given that this hierarchy focuses on knowledge management, it is also more aimed toward knowledge than wisdom, especially applying knowledge within a specific organisational context.

Zack (1999, p. 46) described these relationships as follows: data does not have any meaning or context, but once data is observed with meaning in a specific context, it results in information. Once information is structured, it results in knowledge. Considering these points on the relationships between data, information, knowledge, and wisdom, context and interpretation are needed to process data into information, knowledge, and wisdom and to apply it within organisations from a knowledge management perspective. Therefore, the following definitions are provided for each of these concepts, with a large focus on knowledge.

2.2.2 Defining data

'Data' is defined as "symbols, facts, or rough observations" with no meaning on their own unless placed in context (Pijpers, 2010, p. 3). For data to be converted to information, value needs to be added, which can be done through five processes (Davenport & Prusak, 1998; Tiwana, 2000):

a) contextualisation (knowing the purpose of the data),
b) categorisation (knowing the main elements of the data),
c) calculation (knowing whether the data was analysed mathematically or statistically),
d) correction (removing any mistakes from the data), and
e) condensation (summarising the data to be more concise).

2.2.3 Defining information

'Information' is data that has been processed in a certain context to add meaning to it. Once value and meaning have been added to data, it can be considered as information (Cox, 2014, p. 4). On the other hand, information has no meaning without knowledge as knowledge can only influence individuals that have the capabilities to understand information (Mládková, 2012, p. 880-881).

2.2.4 Defining knowledge

As discussed in Section 1.1, knowledge plays a significant role in organisations because knowledge is needed to be successful and to remain competitive. While discussing knowledge creation within companies, Nonaka (2007, p. 162) stated that "in an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge," but "managers … misunderstand what knowledge is and what companies must do to exploit it." It is, therefore, important to define 'knowledge' on a business level to enable organisations to understand, distribute, and use knowledge adequately (Bolisani & Bratianu, 2018, p. 7).

Philosophers and researchers alike have battled for years with an appropriate definition for 'knowledge'. As a result, knowledge has been described as "a very powerful concept" with no distinct definition (Bolisani & Bratianu, 2018, p. 1). For this study, the definitions by Davenport and Prusak (1998, p. 5) and Wiig (1995, p. 1) are employed. Davenport and Prusak (1998, p. 5) defined 'knowledge' as a combination of "experience, values, contextual information, and expert insight," which enable individuals to evaluate and incorporate "new experiences and information." Wiig (1995, p. 1) added that knowledge can be converted into, for example, books, documents, and even a person's culture. This transformation leads to "expertise [and] increased effectiveness." This is also substantiated by Davenport and Prusak (1998, p. 5) who state that knowledge can be recorded and stored in organisations within documents or databases, processes, best practices, and routines.

2.2.4.1 Types of knowledge

Nonaka and Takeuchi (1995, p. 8-10) identified two types of knowledge within organisations: explicit knowledge and tacit knowledge. Explicit knowledge can easily be transferred in words, documents, or technology but is considered to only be "the tip of the iceberg," with tacit knowledge forming the majority of organisational knowledge (Nonaka & Takeuchi, 1995, p. 8). Tacit knowledge, on the other hand, is regarded as personal and difficult to share with others, such as "insights, intuitions, and hunches … actions, experiences, as well as ideals, values, or emotions" (Nonaka & Takeuchi, 1995, p. 8). Tacit knowledge is more complex than explicit knowledge because it includes skills and abilities for achieving something (technical tacit knowledge) and perceptions and beliefs, which are difficult to transfer and communicate (cognitive tacit knowledge). For new knowledge to be created within organisations, employees need to formalise their tacit knowledge into tangible, explicit knowledge so that it can be shared and used by others. This new explicit knowledge should then be converted back to tacit knowledge for it to become part of their skills and experiences (Nonaka & Takeuchi, 1995, p. 9-10). Therefore, the following four knowledge conversion types have been identified (Nonaka & Takeuchi, 1995, p. 63-69):

a) **Socialisation: Tacit knowledge to tacit knowledge**

'Socialisation' is the process of sharing one's tacit knowledge as experience and skills with another person, and thereby passing on tacit knowledge from one person to another, creating more tacit knowledge. Socialisation, therefore, focuses on experience, which can be acquired through being trained by someone, observing how someone completes a task or process, and practising the task or process on their own. The process of socialisation does not only occur between employees within an organisation but can also occur between employees and clients who share ideas with one another when creating new products or enhancing services.

b) **Externalisation: Tacit knowledge to explicit knowledge**

'Externalisation' is considered the ultimate form of knowledge creation where experiences and ideas are converted into actions and strategies through the use of symbolism to make certain concepts, tasks, and processes easier for others to

understand and perform. Externalisation relies on “metaphors, analogies, concepts, hypotheses, or models” (Nonaka & Takeuchi, 1995, p. 64): to make tacit knowledge more understandable by the individuals it is shared with.

c) Combination: Explicit knowledge to explicit knowledge

The process of ‘combination’ makes use of knowledge-based systems to combine and categorise various sources of explicit knowledge. Explicit knowledge is stored in files and documents or exchanged through communication channels, where it can then be organised and categorised or added into databases to be used as new explicit knowledge. In organisations, combination is usually seen in the development of an organisation’s visions, missions, products, and business processes, which is also highly dependent on IT tools to store, share, retrieve, and communicate that knowledge throughout the organisation.

d) Internalisation: Explicit knowledge to tacit knowledge

Nonaka and Takeuchi explained that this mode of knowledge conversion requires an individual to internalise one or more of the other knowledge conversion modes and can be related to externalisation as it requires the practice of explicit knowledge to acquire tacit knowledge. To enable better internalisation of knowledge, explicit knowledge can be captured in documents with the use of models and diagrams to ensure that others understand the experiences of others to conceptualise them as their own.

Nonaka (1994, p. 20) also introduced the knowledge spiral, which allows all four modes of knowledge creation in an organisational setting to initiate a continuous cycle, where each mode is triggered by certain events. To start, socialisation begins with people sharing experiences within their groups, which leads to externalisation where members within these groups can form their own understanding of these shared experiences. Through documentation, this newly created explicit knowledge can be documented, stored, and shared with other members, who can then internalise the knowledge through a process of “learning by doing” (Nonaka, 1994, p. 20). Therefore, for knowledge creation within

organisations, the continuous exchange between the different modes of knowledge creation should be facilitated.

2.2.4.2 Knowledge processes and activities

As mentioned previously, knowledge consists of a variety of activities that are needed for successful knowledge management. Bolisani and Bratianu (2018, p. 23-26) explained that managers need to identify the seven knowledge processes within an organisation to understand what knowledge is and how to manage their internal knowledge successfully. These seven processes are:

1) **Knowledge creation:** When individuals learn and experience the world around them, knowledge is created. This could result in organisational knowledge when used within the right contexts.
2) **Knowledge acquisition:** This refers mainly to explicit knowledge, which organisations obtain through purchasing hardware, software, and books with the aim of expanding their internal knowledge. Organisations should also explore external sources for new forms of knowledge.
3) **Knowledge sharing and distribution:** This requires people to willingly share their knowledge or experience on their own. Knowledge sharing plays a vital role in knowledge management and "aims to link the individual level, where knowledge resides, and the organisational level, where knowledge is applied and attains value" (Sanchez, et al., 2013, p. 291).
4) **Knowledge transformation:** This process entails the conversion of tacit knowledge to explicit knowledge and explicit knowledge to tacit knowledge through externalisation and internalisation, as explained by Nonaka and Takeuchi (1995, p. 62-69).
5) **Knowledge storage and retrieval:** This can be divided into two levels, the organisational level and the individual level. Organisations store their knowledge on databases, or in books or manuals, or through processes or rules, which can easily be retrieved by anyone in the company. Individuals, on the other hand, rely on experience and memorisation to store and retrieve knowledge.
6) **Knowledge loss:** This occurs when experienced employees retire or resign from an organisation. If these employees' tacit knowledge were never converted to explicit

knowledge and stored or managed, it can be a significant loss for the organisation and for new, inexperienced employees who take over.

7) **Knowledge use:** The use of knowledge can improve innovation and competitive advantage if knowledge is efficiently applied to the products and services of a company. The application of the expertise of employees, as well as stored knowledge, can improve the processes and services of an organisation.

2.2.5 Defining wisdom

Last of the DIKW concepts, according to Rowley (2007, p. 174), 'wisdom' is defined as collected knowledge that can enable individuals to apply their knowledge within different contexts and use it to solve different problems.

This section described the hierarchy of DIKW as a prelude to knowledge management, knowledge sharing, and knowledge conversion, which are the main focus of this research.

2.3 Knowledge Management

With the understanding of the DIKW hierarchy and its components in the context of knowledge management, this practice and its related elements can be discussed next. However, as previously indicated, knowledge sharing is a key activity within knowledge management. Therefore, a definition of 'knowledge management' is necessary to discuss its origins and benefits; its related models, tools, and techniques; and the importance thereof before discussing knowledge sharing.

2.3.1 Origin of knowledge management

Over 4,000 years ago, early Syrian civilisations managed their knowledge through archiving stone tablets, which contained information on their governments and how they lived. Ancient libraries in Egypt created, disseminated, and housed thousands of texts written by hand. The development of the printing press in the 1400s created faster ways of knowledge dissemination, and most recently, modern technology has advanced enough for anyone to share and access knowledge and information from anywhere in the world (Ives et al., 1998, p. 269-272). Dalkir (2013, p. 12) also emphasised narration as a knowledge sharing practice

that has been in place for centuries through meetings, conferences, and seminars. These events were (and are still) used to build and learn from past experiences.

Pizziconi and Wiig (1997, p. 8) traced the modern use of knowledge management back to the 1970s, stating that Chaparral Steel was one of the first companies to base their corporate structure on knowledge management. In the 1980s, knowledge management rose with the following key events (Pizziconi & Wiig, 1997, p. 8):

The first "large scale knowledge-based system" was installed in 1980 by Digital Equipment Corporation. By 1983, the first knowledge-based system to store and distribute expert knowledge was developed by the United Services Automobile Association. A keynote address on *Management of knowledge: Perspectives of a new opportunity* was presented by Wiig in 1986 at a conference, but the first book on knowledge management was published a year later by Sveiby and Lloyd, entitled *Managing knowhow*. In the same year, Purdue University hosted the first knowledge management conference, called *Knowledge assets into the 21st century*. By 1989, a survey revealed that most CEOs considered knowledge to be the most important asset of an organisation. The same year, the Sloan Management Review published *Organisational learning – The key to management innovation*, written by Stata, which was their first published article on knowledge management. Around this same time, multiple consulting firms also developed internal knowledge management strategies and provided knowledge management services to their customers.

Throughout the 1990s, more books and articles relating to knowledge management were published (*The knowledge-creating company* by Nonaka in 2007 in the *Harvard Business Review*; *Corporate knowledge management* by Steels in 1993; and *Knowledge management foundations* by Wiig in 1993), more conferences where held, dedicated to knowledge management (such as *Knowledge management for executives* that was held in France in 1994 by The International Knowledge Management Network), and more organisations adopted knowledge management strategies with either internal or external assistance (Pizziconi & Wiig, 1997, p. 8).

During the early 2000s, knowledge management studies and publications were mostly focused on the fields of engineering, business, and economics, but more recently, there has been a rise in knowledge management publications within information and library science,

computer science, and psychology (Akhavan et al., 2016). The focus areas for these studies are knowledge management systems and processes, how knowledge management is implemented within organisations, and knowledge management strategies (Dwivedi et al., 2011, p. 54). In the 21st century, the use of knowledge management tools has increased, and new tools have been developed through the use of information and communication technology (Ghani, 2009, p. 35-36). With the development of knowledge management as a multidisciplinary field, anyone from almost any field can practise knowledge management (Dalkir, 2013, p. 6-7). Each field that contributes to knowledge management also brings with them different perspectives on knowledge management (Lloria, 2008, p. 79).

2.3.2 Knowledge management models

The knowledge processes and activities listed in Section 2.2.4.2 'Knowledge processes and activities' have been combined to develop various knowledge management models. These are crucial to the success of 21st century organisations, enabling them to identify their knowledge needs and strengths within each knowledge management activity (Haslinda & Sarinah, 2009, p. 196-197; Mohajan, 2017, p. 32). This section discusses two knowledge management models that relate to knowledge sharing: the 7-circle knowledge management model, and Weick's sensemaking model.

2.3.2.1 The 7-circle model

Ologbo and Nor (2015, p. 123-125) introduced the 7-circle knowledge management model, which explains the seven components (or circles) that manage organisational knowledge:

a) **Circle 1: Develop a knowledge management strategy/initiative**

   Before developing a knowledge management strategy, first and foremost, there has to be a demand for knowledge within the organisation. Thereafter, with the needed monetary and social support from top-level management, a knowledge management strategy can be developed.

b) **Circle 2: Create and recognise a knowledge management culture**

   For the developed knowledge management strategy to be successful, an organisation needs a proper knowledge management culture. Individuals within an organisation

are the main source of knowledge and are important resources for the success of knowledge management. Therefore, a culture that prevents sharing and collaboration will not lead to successful knowledge management.

c) Circle 3: Choose the right knowledge management people

Organisations that want to manage their knowledge should appoint teams that can influence and encourage other members of the organisation to create, share, and use their knowledge. Appointing the right people for a knowledge management initiative or strategy can prevent rework, enhance knowledge retention, and prevent a loss of knowledge.

d) Circle 4: Choose the right knowledge management mechanisms

Focus groups, communities of practice, and best practices are some of the knowledge management mechanisms used by successful organisations to distribute knowledge company-wide. Successful knowledge management mechanisms combine two approaches: the practice approach, which allow individuals to share their tacit knowledge through socialisation and collaboration; and the process approach, which makes use of "processes and technologies" (Ologbo & Nor, 2015, p. 124) to store and provide access to knowledge to anyone within the organisation.

e) Circle 5: Choose the right knowledge management technology

Technology plays a significant role in knowledge management and can enable employees to communicate, collaborate, store, and retrieve knowledge. Technology used in knowledge management can include portals, intranets, blogs, forums, databases, and systems that help with troubleshooting. For technology to be effectively used, organisations should ensure it is accessible to all employees and that employees are trained on how to use the technology.

f) Circle 6: Co-ordinate knowledge management interaction

If employees are not trained to use technologies for sharing knowledge, they may be reluctant to use this technology. It is, therefore, important to observe the interaction

between employees and knowledge management or knowledge sharing technologies to find and resolve any problems before they hinder knowledge sharing.

g) Circle 7: Implement a knowledge management motivation system

When employees do not have time to share knowledge or do not see it as beneficial to themselves, they may be reluctant to share their knowledge. Therefore, management and knowledge managers should ensure that there is a motivation system in place to encourage and reward employees for sharing their knowledge.

2.3.2.2 Weick's sensemaking model

Weick's Sensemaking (Weick et al., 2005) is where people can view situations that have already happened and process them into their current circumstances. Within organisations, groups of people find they have shared experiences and circumstances, and therefore, sensemaking does not only happen individually but also caters for socialisation between members, enabling new understandings of situations to spread throughout organisations (Weick et al., 2005, p. 410-413). After these groups have made sense of their current circumstances, they can decide on actions to take to improve their situation or solve any problems. In this model, there are four prominent phases, which define the process of sensemaking: enactment, ecological change, selection, and retention. This leads to "changes between actors (Enactment) and their environments (Ecological Change) that are made meaningful (Selection) and preserved (Retention)" (Weick et al., 2005, p. 414).

Table 1 below provides a summary of the models discussed in this section and also offers a commentary of their role in knowledge sharing:

Table 1. Knowledge Management Models and Their Role in Knowledge Sharing

Knowledge Management Model	Main Aspects	Role in Knowledge Sharing
7-Circle Model (Ologbo & Nor, 2015, p. 123-125)	knowledge sharing; knowledge management (of peoples and cultures); knowledge management tools	This model focuses on knowledge sharing within organisations, how it can be encouraged by top-management, and also how technologies can enhance sharing and collaboration between employees.
Weick's Sensemaking Model (Weick et al., 2005, p. 409-414)	sensemaking; knowledge sharing	Weick's sensemaking model explains how retrospective sensemaking between members of a community can lead to sharing experiences and understandings, which can help with finding solutions to common problems.

2.3.3 Knowledge management tools and techniques

With the evolution of IT, various tools and techniques have been developed to assist with knowledge management and the management of knowledge activities in organisations, such as knowledge sharing (Ghani, 2009, p. 34). This section focuses on the characteristics of knowledge management tools and discuss their uses based on the types of knowledge they manage.

2.3.3.1 Knowledge management tools

The rise of intranets, extranets, data management, and IT companies have all led to the growth of web-based knowledge management tools (Rao, 2005, p. 21). The internet is a powerful platform that can allow the development of different tools to share and manage knowledge throughout its various stages. These tools have been laid out by Ghani (2009, p. 35-37) and are summarised below:

a) **Database Tools:** Database tools assign properties to data and give it more meaning.
b) **Workflow Management Tools:** These tools specify workflows within an organisation and allow for documents to be shared.
c) **Agent Tools:** Agent tools provide search functionality to find information for users in databases and on the internet.

d) **Search Engines, Navigation Tools, and Portals:** These types of tools help users find and analyse the information they need (Rao, 2005, p. 27-29).
e) **Visualisation Tools:** Visualisation tools display knowledge at various levels of organisations**.** Knowledge portals can also be integrated with visualisation tools to facilitate the "organisation, navigation, visualisation, and heuristic interaction of employees with one another and with information" (Rao, 2005, p. 13).
f) **Collaborative Tools:** These tools allow users to communicate with one another to facilitate discussions, share experiences, and connect people with experts (Rao, 2005, p. 27).
g) **Blogs:** Although traditionally used as personal journals, blogs also store and share knowledge. They have search and collaboration functionalities, and they can be highly personalised to suit the user's needs.
h) **Wikis:** Wikis are webpages that hold information that link to other pages. Almost any user can add to the information on the pages and is, therefore, an effective tool for knowledge sharing and collaboration.

2.3.3.2 Purposes of knowledge management tools

According to Ghani (2009, p. 34-35), these IT tools can serve five different purposes for knowledge management:

a) **Access knowledge:** This helps a user acquire access to explicit knowledge, which can then be shared across an organisation.
b) **Semantic mapping:** This purpose indexes, sorts, and organises knowledge and information into categories, which makes it easier to update and retrieve.
c) **Knowledge extraction:** This makes use of search engines, where users request information based on keywords and the relationships between them.
d) **Enterprise localisation:** This purpose identifies experts in certain fields within an organisation to help users retrieve knowledge from the correct people.
e) **Collaboration:** This enables groups of people to share and access knowledge globally by facilitating discussions and providing a platform to share experiences and store documents.

2.3.3.3 IT tools for specific knowledge management processes

Each of the knowledge management processes require specialised functionality, and knowledge workers, therefore, need specific tools for specific phases of knowledge management, as depicted below (Rao, 2005, p. 38):

a) **Knowledge Creation:** Business intelligence and e-learning
b) **Knowledge Codification:** Content management systems, document management systems, and taxonomies
c) **Knowledge Retrieval:** Search engines and visualisation tools
d) **Knowledge Application:** Workflow tools and collaboration tools
e) **Knowledge Distribution:** Knowledge portals
f) **Knowledge Validation:** Expert communities, such as communities of practice
g) **Knowledge Tracking:** Email mining
h) **Knowledge Personalisation:** Communication tools, collaboration tools, and conferencing tools

An additional point to add to this list comes from Chatti, et al. (2007):

i) **Knowledge Sharing**: Podcasts, blogs, and wikis

2.3.3.4 Nonaka's knowledge spiral and IT tools

Rao (2005, p. 38) and Ghani (2009, p. 30) identified knowledge management tools that are most suited for the phases of the knowledge spiral (discussed in Section 2.2.4.1). For the socialisation phase, webcams, video conference tools, and virtual reality are suitable for tacit knowledge exchange as this assists individuals with sharing experiences and ideas. For explicit knowledge exchange in the combination phase, tools that assist with database management, data warehousing, and classification of knowledge and information are most suited to enable users to share documented knowledge. For explicit to tacit knowledge conversion in the internalisation phase, e-learning and visualisation tools can assist with "learning by doing" (Nonaka, 1994, p. 20). Finally, communities of practice can assist with externalisation in translating experts' tacit knowledge into explicit knowledge that can be shared with other groups within a specific field.

2.3.4 Knowledge management and its correlation to knowledge sharing

With the multiple knowledge management activities, tools, and techniques that have been identified, knowledge management and the different approaches thereto play a vital role in most organisations. Because knowledge management is a key factor in organisations today, Dalkir (2013, p. 20) expanded on the importance of the field within its three primary areas: individuals, communities of practice, and organisations.

On an individual level, knowledge management can help with better time management by improving individuals' decision-making skills and problem solving (Dalkir, 2013, p. 20). It also provides the possibility for individuals to contribute to the knowledge base of an organisation by sharing their knowledge. For communities of practice, knowledge management can enhance the professional skills of people within the communities, also providing opportunities for collaboration, knowledge sharing, and learning. Last of all, on an organisational level, knowledge management can help organisations stay competitive, find best practices, and solve problems (Dalkir, 2013, p. 20). Therefore, knowledge management can improve all three areas by helping individuals, communities of practice, and organisations to find experts within the fields and enhance their expertise through knowledge sharing and collaboration.

Dixon (2018, p. 19) also described three areas or categories of knowledge management that have evolved the methods of collecting and using organisational knowledge: The first category deals with documenting and storing explicit knowledge, providing employees have access to this knowledge from a repository or database. The second category deals with explicit knowledge by allowing employees to form communities for knowledge exchange and learning from each other's experiences. To finish, the third category recognises that the importance of explicit and tacit knowledge exchange in the first two categories, and it emphasises the creation of new knowledge and better innovation through collaboration and teamwork. Consequently, the third category recognises the importance of embracing knowledge management within all areas of an organisation and not just specific departments (Dixon, 2018, p. 41).

In conclusion, this section provided background information on knowledge management by discussing the origins and definitions of the method, the importance thereof, its models, and

how it relates to knowledge sharing. Tools and techniques that manage knowledge were also discussed.

In this study, knowledge management is seen as an overarching practice composed of different activities, with specific focus on knowledge sharing. From here on, the study will, therefore, elaborate on the activity of knowledge sharing to form the backbone of the knowledge sharing strategy for Company A, the chosen IT consultancy.

2.4 Knowledge Sharing

In Section 2.2.4 'Defining knowledge', knowledge was discussed as a process, where knowledge management activities have four modes of knowledge conversion. From this foundation, this section elaborates on knowledge sharing by defining it and discussing its origins, barriers, and strategies within IT companies, as well as describing the importance thereof.

2.4.1 Origin of knowledge sharing

The origins of knowledge sharing can be linked to the origins of knowledge management, as outlined in Section 2.3.1. Civilisations have shared knowledge through cave drawings (Alexander, 2017), stone carvings, libraries and written and printed texts (Ives et al., 1998, p. 269-272). Hansen et al. (1999) discussed that the development of information technology has contributed to knowledge management and sharing within organisations. With information technology becoming more popular, and knowledge sharing becoming more important for competitive advantage, some organisations have focused on the categorisation of knowledge: Knowledge "is extracted from the person who developed it, made independent of that person, and reused for various purposes" (Hansen et al., 1999). This is also substantiated through externalisation, a knowledge conversion mode presented by Nonaka and Takeuchi (1995, p. 65), which aims to convert tacit knowledge into explicit knowledge that can be shared with others.

2.4.2 Defining knowledge sharing

According to some authors, the terms 'knowledge sharing' and 'knowledge transfer' can be used interchangeably (Paulin & Suneson,2012, p. 82; Wang & Noe, 2010, p. 117), although

Wang and Noe distinguish between these two terms by stating 'knowledge sharing', unlike 'knowledge transfer', does not necessarily mean that the person the knowledge is shared with will retain it. Knowledge sharing is only used to assist with short-term issues that require solutions. For this study, the term 'knowledge sharing' indicates knowledge that is both shared with the purpose of assisting others with problem solving and that allows the other person to retain this knowledge.

2.4.3 An overview of knowledge sharing

The following section provides a brief overview of knowledge sharing barriers, which could prevent knowledge being shared, and the importance of knowledge sharing specifically within IT consultancies.

2.4.3.1 Knowledge sharing barriers

According to Ujwary-Gil (2011, p. 90), organisational culture has a considerable influence on knowledge management within the organisation. If an organisation's culture is unsuitable, then individuals will be less likely to share their tacit knowledge because it might compromise their role in the organisation. This insecurity of an organisation's staff could mean that there will be no knowledge for the organisation to manage, and existing tacit knowledge may be lost.

Szulanski (1995, p. 1) referred to the barriers of knowledge sharing and transfer as "stickiness" and identified the following characteristics that contribute to the 'stickiness' of knowledge sharing (Szulanski, 1996, p. 30-32):

a) **Ambiguity and unprovenness:** "Ambiguity" (Szulanski, 1996, p.30) refers to the difficulty in sharing tacit knowledge (skills, experiences, and know-how) whereas "unproveness" (Szulanski, 1996, p.30) refers to the issue that knowledge is difficult to share if it cannot be proven to be useful.
b) **Shortfall of motivation:** This refers to a lack of motivation from the person sharing the knowledge (which can be attributed to a fear of losing their position in a company) no motivation from the recipient to absorb new knowledge.

c) **Unreliability and a lack of relationship:** If the recipient of the knowledge trusts the provider of the knowledge, they will be more likely to accept and absorb new knowledge; if the source of the knowledge is not trustworthy, the recipient will be reluctant to accept new knowledge. On the other hand, the relationship between the provider and recipient of the knowledge is also very important, as a negative relationship between the two parties will hinder communication and knowledge sharing.

d) **Shortfall in capacity to absorb knowledge:** Employees who are unable to identify and collect new knowledge will hinder their ability to use the knowledge toward the success of the organisation.

e) **Shortfall in knowledge retention:** Employee who are unable to retain the knowledge they have collected also pose a hindrance to knowledge sharing, as this knowledge will be lost and cannot be used in the future.

f) **Context:** This barrier focuses on organisations that do not encourage knowledge sharing within the organisation, and that knowledge sharing should not only be focused in one specific area but should be organisation wide.

In a study by Huan et al. (2017, p. 1572), the main components of knowledge 'stickiness' are influenced by the willingness of employees to transfer knowledge, their ability to do so, the capacity of knowledge to be transferred, and lastly, the extent to which the recipients of the knowledge can reuse it to their advantage. Ujwary-Gil (2011, p. 90-95) identified some barriers to knowledge sharing and knowledge management within organisations: First, employees could be unwilling to share their tacit knowledge as they might believe their knowledge provides them with an advantage within the organisation, which they might lose if their colleagues know what they know. Next, if employees do not know how to use knowledge and information management tools, organisations cannot manage their knowledge effectively, and therefore, the employees will also not know how to use these systems to share knowledge with one another. It is, thus, important for users to be trained on how to use these systems to store and share knowledge. Likewise, employees might not have the extra time to share knowledge, might not be aware of who has the knowledge they need, or may not think that their knowledge and experience will be important enough to share. Managers should, consequently, ensure that employees are incentivised when sharing

knowledge with others. Last of all, if there are no new employees with new tacit knowledge entering the organisation, there will not be new knowledge to share and manage. On the other hand, employees with plenty of expertise may leave the organisation before their tacit knowledge was shared and captured. Managers may also be cautious to share knowledge with employees or put effort into training them, for the fear that the employees can leave the company and share their knowledge with other organisations, resulting in the organisation losing their competitive advantage.

2.4.3.2 The importance of knowledge sharing

According to Klanwaree and Choemprayong (2019, p. 441), knowledge management and especially knowledge sharing are critical for the success of IT consultancies as these companies rely heavily on the knowledge and experience of consultants to complete projects successfully and ensure client satisfaction. A study by Szirtes (2012, p. 156) showed that sharing tacit knowledge within IT consultancies is more important than explicit knowledge for it leads to greater competitive advantage when consultants learn from past experiences. The study also proved that knowledge sharing is more productive when consultants form communities for knowledge sharing due to this, enabling trust and motivating their colleagues to share knowledge – sharing knowledge purely for monetary or reputational benefits were the least successful methods of knowledge sharing within the specific consultancy (Szirtes, 2012, p. 156).

2.4.4 Knowledge sharing in IT consultancies

As the study has a foundation in IT, the following table summarises studies by authors who explain how knowledge sharing can be used in IT consultancies. Various databases were consulted (such as EBSCOhost, Emerald, and IEEE) and journal articles sourced using the following keywords: ‘knowledge sharing,’ ‘knowledge sharing strategy,’ ‘IT,’ ‘consulting,’ and ‘consultants.’ Articles on knowledge management and consultancies that did not form part of the IT industry were not included.

Table 2. Key Findings of Knowledge Sharing in IT Consultancies

Author (Date)	Title of Article	Findings
Borges (2013)	Tacit knowledge sharing between IT workers: The role of organisational culture, personality, and social environment	This article focuses mainly on workers sharing tacit knowledge in an IT industry. From the findings, a few crucial factors that can influence tacit knowledge sharing, either positively or negatively, came to light: An organisational culture that is supportive of its workers and manifests a sense of belonging can influence more knowledge sharing between employees. What is more, certain personality traits can prevent tacit knowledge sharing more than others. In the study, it was found that introverts are likely to share tacit knowledge more easily than extroverts as they tend to pay attention to what others are saying, whereas extroverts would rather lead and facilitate discussions than internalise knowledge.
Han (2007)	Knowledge sharing in large IT organisations: A case study	This study identified four factors that could influence knowledge sharing. Organisational factors create a culture of sharing and employees who trust each other, who will make knowledge sharing more effective. As a part of organisational factors, employees are more willing to share their own knowledge with others who will reciprocate knowledge sharing. Technological factors affect employees within an IT environment, making them more willing to share their knowledge with others if they have access to substantial knowledge sharing tools. The learning factor states that employees need to be trained on how to use knowledge sharing tools and technologies to their advantage because not knowing how to use these tools will lead to them not being used. Last of all, the leadership factor holds that knowledge sharing should be encouraged from a managerial level to support employees in sharing their own knowledge with their colleagues. Additionally, employees may be discouraged from sharing their knowledge if they feel it may put them at a disadvantage over their coworkers.
Hidayanto, et al. (2013)	Knowledge sharing perception: Multiple case studies in Indonesian IT consulting companies	This study highlighted various influences on knowledge sharing, including knowledge sharing activities, technologies, motivational factors, benefits, barriers, and how these barriers could be overcome. The study identified knowledge sharing activities by employees as activities like saving documents on a portal, having brainstorming sessions with colleagues, communities of practice, and video conference sessions where work and knowledge could be shared and discussed with colleagues. The technology used by employees was video conferencing software, internet and intranets, portals, and other

		knowledge management software designed for collaboration. Motivational factors that encouraged employees to share their knowledge with each other included recognition for their work and receiving promotions for sharing their knowledge. Knowledge sharing benefited employees by helping them better manage their time, communicate more effectively, and improve their work processes. They could make better decisions, enhance their productivity, creativity, and innovations, and could be more satisfied with their work. One highlighted benefit to the organisation is that it could be seen as a learning organisation, which could enhance their reputation. Barriers to knowledge sharing include colleagues who do not trust one another, a lack of encouraged teamwork, employees not being trained to use the knowledge sharing technologies, general communication gaps between employees, and insufficient encouragement from management. To resolve these barriers, the study suggested encouraging employees to contribute to knowledge sharing activities, promoting knowledge sharing technologies to create awareness, and establishing more effective communication to allow employees to share their knowledge.
Klanwaree and Choemprayang (2019)	Objectives and key results for active knowledge sharing in IT consulting enterprises: A feasibility study	This study identified three barriers and two needs for knowledge sharing within IT consultancies. First of all, the barriers included a delay in delivering products to clients, less productive employees, and employees who were unmotivated or discouraged from sharing their knowledge with others. The identified needs for knowledge sharing include maintaining constant communication between employees to enhance knowledge sharing and developing understanding and adherence to the consultancy's strategy to ensure that knowledge management activities align with the organisation's mission.
Kucharska (2021)	Do mistakes acceptance foster innovation? Polish and US cross-country study of tacit knowledge sharing in IT	This study highlighted that employees in an IT industry who are prepared to make mistakes by making riskier decisions are more focused on their tacit knowledge, more aware of anything new they have learned, and will therefore also be more innovative in their work outputs.
Lee and Shiva	An approach to	Tools, technologies, and solutions were identified in this study for solving knowledge sharing barriers.

(2010)	overcoming knowledge sharing challenges in a corporate IT environment	Some of these technologies included intranets and repositories for storing documents. To overcome knowledge sharing barriers, the researchers suggested a database where employees could search for people, skillsets, and knowledge sources within the organisation. This would make it easier to identify which employees have expertise on a specific topic and who to consult for a specific problem. The functionality of the database should include notifications on new knowledge that is added, a central access point, and to make it accessible and user friendly.
Lei, et al. (2022)	From "personal" to "interpersonal": A multilevel approach to uncovering the relationship between job satisfaction and knowledge sharing among IT professionals	Employees who are satisfied with their work and their employer will be more inclined to share knowledge with their colleagues, according to this study.
Sherif and Xing (2006)	Adaptive processes for knowledge creation in complex systems: The case of a global IT consulting firm	In this study, the IT consultancy has a detailed knowledge sharing strategy: Team members on projects would document what they have learned on their projects and tag the documents for easier retrieval from their repository; after knowledge objects have been stored on the repository, the consultants would also have sessions with knowledge managers to discuss the helpfulness of certain knowledge objects to decide if they should be kept or removed from the repository; this repository would also enable consultants to search for useful documents before they start a project to assist them through the project lifecycle. Some barriers identified by the study included a lack of time for consultants to assess documents in the repository, as well as too little time to complete all the steps necessary to upload a document to the repository. To overcome these barriers, the study suggested that the organisation should allocate more time for consultants to spend on knowledge sharing and documenting their knowledge.
Song, et al. (2022)	Exploring the relationship between learning goal	This study described benefits and barriers to knowledge sharing. According to the researchers, knowledge sharing could result in consultants who are more motivated and can find solutions faster. It

	orientation and knowledge sharing among information communication technology consultants: The role of incentive schemes	also enables mutual knowledge sharing between colleagues and could facilitate better time management. Incentivising consultants could be a motivation for them to share knowledge and participate in knowledge sharing activities. Barriers mentioned in this study included that consultants are more willing to share explicit knowledge over tacit knowledge for the following reasons: tacit knowledge is difficult to share; consultants may be afraid to lose their competitive edge when they share their tacit knowledge with others; and overall, consultants may benefit from the knowledge that is shared by others, even if they do not share their own knowledge themselves.
Thomas (2023)	Promoting IT professionals' tacit knowledge sharing through social capital and web 2.0: The moderating role of absorptive capacity	This study discussed tacit knowledge sharing specifically and included the following main ideas: for tacit knowledge sharing to be successful, IT professionals need to trust each other, be willing to exchange their knowledge mutually, and have the same ambitions. Knowledge sharing goals can also be supported through the use of technologies, including blogs, online communities, and intranets. Most importantly, knowledge sharing relies on communication between employees. According to the study, Web 2.0 can assist IT professionals to be more innovative, with finding solutions and in creating new best practices. To conclude, it was also highlighted by the study that tacit knowledge sharing can be improved when IT professionals feel that their managers notice their contribution to knowledge sharing within the workplace.

During the review of these articles, various tools and technologies, barriers and solutions, and factors that influence knowledge sharing (positively and negatively) within the IT industry were identified. Although there were various articles on the importance of knowledge sharing in organisations, most of these articles focused on knowledge sharing gaps generally, and very few articles had a focus on creating a knowledge sharing strategy. This review also found a need for more knowledge and knowledge sharing within the IT industry to enable IT consultants and professionals to perform better, become more innovative, and deliver better products to their clients. This need, therefore, supports the development of a knowledge sharing strategy for a specific South African IT consultancy, as such an existing strategy could not be found in the literature.

2.4.5 Knowledge management framework

Milton and Lambe discussed the importance of designing a framework when planning a knowledge management application. The purposes of a knowledge management framework are (Milton & Lambe, 2019, p. 148-149):

- to keep the people of an organisation accountable for knowledge management tasks,
- to provide employees with a standardised process, in which they can perform their knowledge management tasks,
- to provide employees with specific technologies to use when finding, transferring, and capturing knowledge, and
- to ensure that the tasks are conducted correctly and consistently.

Such a framework contains the “roles, processes, technologies and governance which collectively enable the acquisition, sharing, maintenance and re-use of knowledge” (Milton & Lambe, 2019, p. 148-149). Barnes and Milton (2014, p. 87-90) stated that a knowledge management framework should be a combination of eight distinct elements. The four main elements are people, processes, technologies, and governance, complimented by the four additional elements of socialisation, externalisation, combination, and internalisation. Five years later, Milton and Lambe named these four additional elements as “Discuss,” “Document,” “Synthesise,” and “Find and Review” respectively (Milton & Lambe, 2019, p. 146-174). The Knowledge Management Standard (ISO 30401) referred to these elements and

included 'culture' as "knowledge management enablers" (International Organization for Standardization, 2018, p. 7) by stating that all are required to implement knowledge management successfully within organisations. Unifying this information from Milton and Lambe (2019, p. 154-198), Barnes and Milton (2014, p. 87-90), and ISO number 30401 (2018, p. 7), the following section briefly discusses each of the four main elements introduced here:

a) **People:** Within an organisation, people should have distinct roles and responsibilities to ensure that knowledge is shared, used, stored, and preserved. This includes holding people accountable for knowledge management, facilitating discussions that allow for tacit and explicit knowledge sharing, and ensuring that knowledge is properly disposed of when becoming outdated or unused.
b) **Processes:** For knowledge management to be successful, it needs to be established within all the areas and processes of an organisation. Additionally, all knowledge management tasks should include well-defined and structured processes that employees can follow.
c) **Technology:** The technology used to store, structure, and find knowledge needs to be defined, and it needs to enable employees to communicate and share knowledge with each other.
d) **Governance:** Expectations need to be established and guidelines specified for retaining the quality of knowledge. Governance should also regulate who owns the knowledge, how the knowledge should be shared and stored, whether people should be trained on managing and sharing their knowledge, and should indicate how often knowledge and technologies are used by people within the organisation.

In closing, Barnes and Milton (2014, p. 86-87) stated that a knowledge management framework does not have to be finished for a knowledge management strategy to be implemented. Such a framework, they said, is merely a suggestion as to what could work for the process of knowledge management within an organisation, and that it should be tested in a pilot phase before being implemented as a final concept. The knowledge sharing strategy that will be developed for Company A, will be based on this framework. This section therefore served as an introduction of this framework to illustrate how the strategy will be developed and structured.

2.4.5.1 A case study of the application of knowledge sharing in knowledge management strategies

Milton and Lambe (2019, p. 394-401) presented a case study on a global organisation that implemented a knowledge management strategy, which focused on knowledge sharing to prevent the reoccurrence of 're-solving' problems that were not shared with the larger organisation. Although the focus of this study was on developing and implementing a knowledge management strategy, the knowledge management framework they presented had a strong focus on knowledge sharing that concentrated on the following aspects:

- Employees were encouraged to align their behaviours with the success of the organisation by sharing what they knew, contributing to knowledge sharing activities, and by approaching colleagues for support in solving problems.
- These knowledge sharing activities made use of platforms like wikis, and guidelines were provided to employees to ensure the governance of platforms, their uses, and the management of their content. These collaborative networks were frequently assessed to ensure that it remained sustainable and usable.
- Knowledge sharing was encouraged by managers, which enabled a culture of knowledge sharing by all employees in the organisation.
- Another major aspect of the knowledge management framework was a focus on learning lessons, sharing best practices, and repurposing knowledge.

Through the review of the literature on knowledge management frameworks, the knowledge sharing aspect of knowledge management has a great focus by indicating that it was incorporated into most aspects of a framework. This kind of knowledge management framework is, therefore, suitable to develop the knowledge sharing strategy for this study based on this section, with a focus on incorporating knowledge sharing activities, preferences, and the needs of IT consultants.

2.5 Conclusion

The aim of Chapter 2 was to present existing literature on knowledge, knowledge management, and knowledge sharing, linking these terms to set the scene for the study. In this chapter, the differences between DIKW were defined to provide a background for

discussing the several types of knowledge (tacit and explicit knowledge) and how knowledge is exchanged through knowledge conversion. Knowledge processes and activities were also reviewed with a focus on their knowledge sharing aspects. Knowledge management was also discussed in this section, as knowledge sharing forms an intricate part of managing knowledge and to therefore provide background to knowledge sharing: The origin of knowledge management was examined. Knowledge management models, with a focus on knowledge sharing; knowledge management tools and techniques, which assist with knowledge sharing; and the correlation between knowledge management and knowledge sharing were identified and considered.

This chapter discussed knowledge sharing, which provided supportive data for the case study, starting with a background of knowledge sharing and how the term is defined for this study. Knowledge sharing barriers in an organisation were also examined, along with why knowledge sharing is important for organisations and its benefits. Furthermore, this chapter investigated cases on how IT consultancies globally share knowledge, and what hinders and what encourages knowledge sharing. These cases were used to compare other consultancies to the IT consultancy investigated in the case study. A knowledge management framework was presented to illustrate how the knowledge sharing strategy was developed and the elements on which it was based. An example from a case study in the literature was also provided to substantiate the use of a knowledge management framework to develop a knowledge sharing strategy. In conclusion, with the focus on knowledge sharing in this section, this literature review was effective in assisting with answering the main research question of what is required for a knowledge sharing strategy for an IT consultancy and assisted in knowing what information should be gathered during the data collection phase.

3. Research Methodology

3.1 Introduction

A research methodology is a strategy undertaken by a researcher to select an appropriate research design, which includes the research paradigm, research method, research approach, and data collection methods (Creswell & Creswell, 2018, p. 1). This chapter discusses the research methodology, research design, research paradigm, research approach, research population and sample, and data collection and data analysis methods. Finally, the reliability of the research and its ethical considerations are also examined.

3.2 Research Design

A research design is a plan that ensures that the data collected by the researcher can successfully answer the research questions of the study (Yin, 2016; Punch & Oancea, 2014). The research design includes how the study will be approached, what methods will be used to collect and analyse data, and what steps will be taken to ensure the data is ethically collected (Mligo, 2016, p. 49).

For this study, the research design forms the foundation of the study and will dictate the following: the research paradigm and approach, research methods and which will be used, how the study population and sample will be chosen, and the methods for data collection and analysis. This research design will also include the steps taken by the researcher to ensure the research is reliable, valid, and that data collection will be conducted ethically. This chapter discusses the abovementioned components of this research design and those that have been chosen to ensure that the research problem and questions will be answered at the completion of this study.

3.2.1 Research paradigm

According to Rahi, a research paradigm is defined as “a set of agreements about how problems are to be understood, how we view the world, and thus go about conducting research” (Rahi, 2017, p. 1). Research paradigms, therefore, provide a philosophical foundation for how and why research is conducted and is chosen based on the researcher’s

beliefs about reality (ontology), knowledge (epistemology), and data gathering (methodology) (Pickard, 2017; Vaishnavi & Kuechler, 2007). Pickard (2017, p. 5) identified three distinct research paradigms: positivism, postpositivism, and interpretivism. For this study, an interpretivist paradigm was selected. This paradigm aims to observe and understand the contexts and experiences of the research participants (Pickard, 2017; Mligo, 2016; Leedy & Ormrod, 2020). Mligo (2016, p. 8) described this paradigm as more subjective, focused on quality of the gathered data rather than the quantity, and the belief that knowledge can change based on how different people experience their surroundings. The interpretivist paradigm was deemed suitable for the study as this study aims to investigate how IT consultants experience and use knowledge sharing in their work life to develop a knowledge sharing strategy based on their needs and preferences. Therefore, this study collected focused, quality data from the 12 people who contributed as participants, rather than gathering data from all of the employees in the company.

3.2.2 Research approach

There are three identified major research approaches: qualitative, quantitative, and mixed methods (Creswell & Creswell, 2018; Pickard, 2017; Mills & Birks, 2017). This section describes qualitative and quantitative approaches, their advantages, disadvantages, and which approach is best suited to this study.

3.2.2.1 Qualitative approach

Mills and Birks (2017) defined the purpose of qualitative research as investigating the experiences of a certain group of people within a specific context to acquire a better understanding of their behaviours. A qualitative approach is, therefore, often linked with the interpretivist research paradigm because it seeks to gather data on the reality and experiences of others (Mills & Birks, 2017; Schwartz-Shea & Yanow, 2011; Galletta & Cross, 2013).

Qualitative research provides insight into people's lives and experiences within a specific context and can provide first-hand accounts and explanations for the behaviour of participants (Rahman, 2016, p. 104). This can, therefore, prove to be an advantageous approach to research that aims to observe and understand certain contexts. On the other

hand, qualitative research is partly subjective, which may have an influence on the accuracy of the data (Thomson, 2011, p. 78-79). Various participant viewpoints and opinions can also inhibit generalisation of the data to the larger population of the sample.

3.2.2.2 Quantitative approach

A quantitative research approach is chosen if the researcher wants to compare data to test a hypothesis (Mligo, 2016, p. 51). This approach is more concerned with collecting data (or facts) objectively to prove certain theories (Thomson, 2011, p. 80). This approach is also most often linked with the positivist research design (Rahman, 2016, p. 106).

As an advantage to using a quantitative research approach, quantitative data is easier to generalise to a greater population for the data consists of definite facts and variables, which are easier to analyse (Rahman, 2016, p. 106-107). On the other hand, quantitative data does not necessarily answer deeper and more complex questions. Variables (or participants) are observed under controlled circumstances; therefore, observations might not explain the causes of certain behaviours or answers from participants.

Considering these two approaches, the qualitative approach is more appropriate for this specific study. Considering that the study aims to investigate how consultants share knowledge, a deep understanding of their behaviour and opinions in their work life is required to develop a knowledge sharing strategy that suits their needs.

3.2.3 Research method

A research method defines how a research scenario is investigated (Pickard, 2017, p. 99). According to Williams (2007, p. 68), the following research methods are more suited for a qualitative study: case studies, ethnography method, grounded theory, phenomenological method, and content analysis. In this section, various kinds of approaches to case studies and the advantages and disadvantages of case studies will be discussed.

A case study aims to study a real-world scenario within a specific context with the intent to increase the understanding of and insight on the case (Yin, 2012; Williams, 2007). The use of case studies can be advantageous when a researcher wants to document changes within a certain context (Noor, 2008, p. 1603; Simons, 2009) or gain different perspectives on a certain

issue (Simons, 2009). Through case studies, participants can become actively involved in the research and can collaborate with the researcher to increase their knowledge and understanding of a specific situation. However, the following limitations to case studies have also been identified: Case studies can accumulate a large amount of data, which can be tedious to process and analyse; their results can be negatively influenced by the participants that were selected with selection bias (Bennett, 2004, p. 39); and though this research explores the current behaviours of participants over a certain period, the participants can change their behaviour or perceptions after the study, which can invalidate the collected data (Simons, 2009).

With case studies as a research method, single or multiple cases can be investigated, falling into one of three types: descriptive, explanatory, and exploratory (Yin, 2012, p. 63-80). These five categories are explored below.

3.2.3.1 Single-case design

In a single-case design, researchers investigate only one specific case (Gustafsson, 2017; Yin, 2018). Yin (2018, p. 64-66) provided the following reasons for conducting a single case rather than multiple cases: A single-case design could be used when the case is out of the ordinary and can provide insight into situations that researchers would not normally have access to. This design could be used if insight is needed into the daily behaviour of a specific group. It could also prove relevant if the researcher wants to measure certain events over a long period, in which case, they will conduct multiple single-case studies. Gustafsson (2017) also suggested that single-case studies investigate a smaller group and can, therefore, collect more in-depth data, provide better understanding of the case, and create less data to analyse.

3.2.3.2 Multiple-case design

In a multiple-case design, researchers investigate more than one case (Vohra, 2014, p. 55). The major advantage of choosing a multiple case design is that results from one case can be replicated in another, providing better results for future analysis (Vohra, 2014, p. 55; Yin, 2018). A multiple-case design's major focus is comparing data from different cases and, for that reason, is better suited to studies where the researcher expects the results to be suitable to be compared or contrasted as the study requires (Yin, 2018, p. 68). Even though this case

study can therefore collect plenty of data, the main disadvantage is also that it can be time consuming to collect and to analyse the data (Gustafsson, 2017).

3.2.3.3 Descriptive case studies

A descriptive case study aims to collect data based on the need to analyse and describe certain events, not necessarily to compare results, generalise on a population, or test a hypothesis (Rabaa'i et al., 2009, p. 459). According to Yin, descriptive case studies seek to answer research questions such as "how many [and] how much" (Yin, 2018, p. 36). and is aimed at describing "the incidence or prevalence of a phenomenon or when it is to track certain outcomes" (Yin, 2018, p. 35-36).

3.2.3.4 Explanatory case studies

Explanatory case studies are used to explain "causal relationships" (Tellis, 1997; Fisher & Ziviani, 2004, p. 186) and should be used when "certain conditions are believed to lead to other conditions" (Yin, 2018, p. 59). These case studies seek to answer research questions on "how" and "why" certain behaviours or events led to certain conclusions (Yin, 2018, p. 36). Such a case study is also reliant on a thorough literature review and pilot study to ensure the validity of the theorised relationships, which is referred to as "internal validity" (Yin, 2018, p. 73; Fisher & Ziviani, 2004).

3.2.3.5 Exploratory case studies

Exploratory case studies are most commonly used as an initial investigation before further study is conducted or before research questions and hypotheses are developed (Cherry, 2022; Host et al., 2012). Yin also explained that exploratory case studies seek to answer "what" (Yin, 2018, p. 35). questions because these types of studies aim to "develop pertinent hypotheses and propositions for further inquiry" (Yin, 2018, p. 35-36).

Considering the diversity of case studies, this research employs a single-case descriptive case study as the main aim of this study is to analyse and describe the knowledge sharing behaviour of IT consultants to develop a suitable knowledge sharing strategy.

3.2.4 Research population and sample

Majid (2018, p. 3) referred to a research population as the group that a researcher will investigate or study. With large groups, a sample of the population is identified based on inclusion and exclusion criteria, and is used to represent and generalise on the entire population (Majid, 2018; Zikmund et al., 2019).

The following advantages and limitations have been identified for research sampling (Krishnaswami & Satyaprasad, 2010, p. 53-54):

Table 3. Advantages and Limitations of Research Sampling

Advantages	Limitations
Large populations can be effectively studied through sampling to save time and costs. Samples can also be statistically determined, which provide better results.	If a sample is not chosen correctly, research results can be inaccurate.
Fewer researchers are needed to collect and analyse data with smaller samples.	Larger samples might be needed if the subject that is researched rarely occurs in the population.
The data collected can be of a higher quality as there is more time to conduct thorough and in-depth investigations.	Sampling plans and methods can be complex and might require more research labour.
Sampling can produce faster research results.	Sampling cannot represent the full population with complete accuracy because some deviation might occur between the sample and the complete population.

3.2.4.1 Sampling methods

There are two main methods of sampling: probability sampling and non-probability sampling. Probability sampling is used when the researcher wants to generalise the sample to the entire population, which means that any member of the population has a chance of being selected for the sample based on certain criteria (Krishnaswami & Satyaprasad, 2010, p. 56). Non-probability sampling is defined as a sample used to "represent the population, but it cannot be said to be representative of the population in any statistical sense" (Zikmund et al., 2019, p. 183). The sample is usually chosen based on convenience (Krishnaswami & Satyaprasad, 2010, p. 56).

The following table summarises the different sampling methods and sampling types as discussed by Zikmund et al. (2019), Pickard (2017), and Krishnaswami and Satyaprasad (2010).

Table 4. Sampling Methods

Sampling Methods	Sampling Types	Description
Probability Sampling	Simple Random Sampling	Any member of the population has an equal probability of being selected for the sample as selection is completely random, as long as the population is homogenous and share certain characteristics regarding age, experience, etc. No in-depth knowledge of the population is needed to select the sample, but the chosen sample could also inaccurately represent the population, considering that there is no set method used in the selection.
	Stratified Random Sampling	This technique divides the population into sub-groups based on desirable characteristics, which can impact the research results, and samples are randomly selected from each group. This is suitable for larger populations and can allow for better representation and generalisation, but prior in-depth knowledge of the population is necessary to classify the sub-groups effectively and prevent any errors, which can lead to misleading data collection.
	Cluster Sampling	Cluster sampling is mostly used when the population is spread over a geographical area or if specific groups of people have desired characteristics that are important for the results of the study. This sample is then chosen based on the clusters instead of the entire population. This technique is effective if the researcher is studying a large population, but it is also considered less effective and can lead to inaccurate data from the chosen clusters if the researcher introduces any bias.
Non-probability sampling	Convenience Sampling	The researcher relies on the availability and convenience of the research participants for this type of sampling, using no statistical methods for choosing the sample. Although this is the easiest type of sampling, the results cannot be used to generalise on the larger population as the sample depends on the availability of participants more than on the relation of the sample to the population.
	Quota Sampling	With quota sampling, the researcher selects a certain

		percentage of the total population to use as a sample. This is also a type of convenience sampling because the researcher uses any available participants until they have met the quota of their sample.
	Purposive Sampling or Judgement Sampling	Through this sampling type, a researcher chooses the sample based on how relevant the participants' characteristics are to the study and does not necessarily aim to generalise the sample to the population. Although this type of sampling guarantees that the participants will have the relevant characteristics essential for the study, it is not an effective tool for generalising and requires prior thorough and in-depth knowledge of the sample.
	Snowball Sampling	Snowball sampling enables a researcher to enlarge their sample by conducting probability sampling and allowing participants to point them to other people who could also provide the needed information. This technique is beneficial for small populations or more professional settings, but it cannot guarantee that all the necessary data will be collected.
	Priori Sampling	This technique is used before the study is conducted to determine how large the sample size needs to be to acquire the necessary data for the research.

For this study, purposive sampling has been used as a sampling method. Participants for the sample were selected based on the following criteria: Participants had to be employed as consultants within a specific department of Company A and had to have worked for Company A for more than one year.

3.2.5 Data collection

According to Pickard (2017, p. 191-192), data collection considers all methods for collecting data during research and subsequent uses and analysis thereof. Various data collection methods have been identified, including observation, interviews, surveys, and questionnaires (Pickard, 2007; Krishnaswami & Satyaprasad, 2010; Wilson & Sapsford, 2006). For this study, interviews were chosen as a data collection method, so this section discusses the several types of interviews, the advantages and disadvantages of this data collection method, and how participants have been interviewed for this specific study.

Interviews are divided into four main categories of structured, semi-structured, unstructured (Dawson, 2019, p. 27), and narrative interviews (Stuckey, 2013). Structured interviews have a fixed set of questions, which are not deviated from and do not provide room for the participant to elaborate on their answers (Pickard, 2017, p. 199). Data collected from structured interviews are easily comparable, but the data is also limited to the questions that were asked as participants cannot elaborate on any of their answers (Krishnaswami & Satyaprasad, 2010, p. 104). Semi-structured interviews also have an interview with pre-established questions ready before the time, but the participants' answers can guide the researcher to ask more questions and to delve deeper into other topics, which can answer the research questions (Stuckey, 2013). These types of interviews are valuable since they allow the researcher to have pre-determined questions but still allow participants to elaborate on their answers. Unstructured interviews are also commonly used if the researcher wants to compare answers from different participants. Unstructured interviews are more conversational, and researchers can change the questions based on answers they have already received from other participants (Wilson & Sapsford, 2006). A disadvantage to unstructured interviews is that the data collected is not easily compared (Krishnaswami & Satyaprasad, 2010, p. 104). Last of all, narrative interviews are also unstructured and allow the participants to share their experiences or personal stories (Stuckey, 2013). Although these types of interviews allow the researcher to collect more data, the process can be lengthy, and the data collected may not always be relevant.

For this study, a semi-structured interview was conducted with employees of the specific IT consultancy chosen for this study. A set of questions was prepared in advance whereby participants were asked to elaborate on their knowledge sharing experiences and behaviours on projects. The interviews were intended to last approximately thirty minutes per participant and were conducted online through Microsoft Teams.

3.2.6 Data analysis

There are various qualitative data analysis methods and theories: grounded theory, phenomenological analysis, narrative analysis, constant comparative analysis, ethnographic analysis, netnographic analysis, and thematic analysis (Pickard, 2017; Kozinets, et al., 2014; Thornberg & Charmaz, 2014; Maxwell & Chmiel, 2014). For this study, a thematic analysis was

chosen as the most appropriate data analysis method. Thematic analysis is defined as "a data reduction and analysis strategy by which data are segmented, categorised, summarised, and reconstructed" to identify any themes within the data (Maxwell & Chmiel, 2014). Thematic analysis is useful for case studies that aim to explore experiences, behaviours, and perspectives of participants to find commonalities among the participants (Braun & Clarke, 2012, p. 297-298), which could solve the research problems (Guest et al., 2014). Roulston (2014) also explained that thematic analysis is often used in interviews to provide the researcher with a way of reducing data by categorising it into themes. Braun and Clarke (2012, p. 60-69) discussed six phases within thematic analysis:

a) **Become familiar with the data:** In the first phase, the researcher should review the data multiple times and note down anything that might be relevant to the study or that is able to answer any of the research questions.
b) **Generate codes:** In the second phase, the researcher should identify important sections in the data and create codes to describe these sections. Gibbs (2007) defines codes as identifying and naming similar sections of data to form themes. The same codes can be used for multiple sections where participants may have the same responses.
c) **Identify themes:** Next, researchers should review the codes they have created and categorise similar codes into themes. The researcher should be able to form links between all the themes so that the themes can form an overview of the data.
d) **Review the themes:** Alhojailan (2012, p. 44) explains that the fourth phase requires researchers to review their themes to ensure that they are valid, suit the aims of the study, and support the research questions. Researchers should review the themes and the data as a whole to ensure the validity of the data and to ensure that the data has been grouped correctly.
e) **Naming themes:** Then, the previously identified themes should be named and defined to ensure that they have a unique focus, relate to each other, and answer the research questions.
f) **Report the findings:** The sixth and final phase of a thematic analysis is to give an account of the analysed data in such a way that there is a logical flow, that the data

can relate to each other, and that it can draw accurate conclusions to answer the research questions.

For this study, the data collected from the interviews was categorised and tabulated into related categories, from which common themes were formed. These themes identify the differences and similarities of the consultants' knowledge sharing behaviours and perspectives to develop a knowledge sharing strategy that will suit their needs.

3.2.7 Validity and reliability

According to Gibbs (2007), collected and analysed data should always be reliable, valid, and should reflect the population accurately, but this is not always possible for qualitative data, which is not always completely objective. The following section discusses how researchers can ensure validity and reliability throughout data collection and analysis, as well as how validity and reliability are measured in this study.

3.2.7.1 Ensuring validity

For qualitative research, researchers link the validity of studies with credibility (Merriam & Tisdell, 2015; Gibbs, 2007; Golafshani, 2003) to depict accurately what participants wanted to convey about their reality (Noble & Smith, 2015, p. 2). Validity and credibility of research studies can, therefore, be measured through triangulation, validation, and comparisons to produce evidence to back up any statements (Gibbs, 2007; Golafshani, 2003; Noble & Smith, 2015; Creswell & Poth, 2018).

First, triangulation can refer to using multiple research methods by several researchers for various data sources through the use of interviews or observations (Gibbs, 2007; Golafshani, 2003; Creswell & Poth, 2018). In this study, interviews have been conducted to attain data from different IT consultants to produce different viewpoints on their knowledge sharing behaviours. These different viewpoints will assist in developing a knowledge sharing strategy that would be suitable for most of the consultants.

The second measure of validity and credibility is validation, which refers to when respondents review the interview transcripts, the identified themes, and the analysed data to ensure that their perceptions have been correctly interpreted (Gibbs, 2007; Noble & Smith, 2015;

Creswell & Pooth, 2018). In this study, participants have been sent their answers to the interview questions for review to ensure that they are satisfied with their responses.

The third measure compares the codes, themes, and the participants' responses to ensure that all similarities and differences have been accounted for (Noble & Smith, 2015, p. 2). For this study, responses from participants will be constantly compared and analysed to ensure that all differences and similarities in the responses are identified and portrayed.

Finally, evidence should be provided by the researchers for any conclusions they draw from the data, for example, by quoting the participants in the research report (Gibbs, 2007). In this study, any statements pertaining to the collected data will be substantiated by quoting the participants while maintaining their anonymity and confidentiality by providing each participant with an anonymous descriptor (for example, "Participant 1").

Moreover, Creswell and Poth (2018, p. 341) also mentioned that any biases or experiences of researchers should be disclosed to ensure the validity of the data and the study as a whole. For this study, considering that the researcher is also an employee for the company that will be investigated, they will strive to remain impartial in the following ways: First, by recording the interviews, the researcher ensures all answers are captured accurately and can be replayed if needed. Next, all participants have been provided with the results of their answers to ensure they were captured accurately, especially if they did not consent to being recorded and answers were captured manually. To conclude, all consultants who have been with the company for longer than a year were invited to contribute to ensure that everyone had an equal chance of being interviewed, therefore, the investigator cannot personally choose participants.

3.2.7.2 Ensuring reliability

Reliability of qualitative data depends largely on the consistency of the methods used by the researcher, and the generalisability of the data to the entire population and other contexts (Noble & Smith, 2015; Golafshani, 2003). According to Gibbs (2007) and Creswell and Poth (2018, p. 234), reliability also depends on the quality and accuracy of the transcriptions of interviews or observations.

Therefore, to ensure consistency, the researcher assured that all participants had an equal chance to enlist in the study and that the same processes were followed for each interview. Furthermore, for the sake of generalisability, the researcher asked interview questions that allowed for direct comparison from one individual to another. This approach aimed to facilitate generalisation of the results to the full population, provided the sample was representative and individual differences were accounted for. The sampling methods and the context of the case study were controlled as far as possible so that similar organisations may apply the findings of this study. Then, as mentioned to ensure validity, all interviews were recorded and transcribed, and participants were asked to review their answers to confirm they have been accurately recorded and can be considered reliable.

Finally, Merriam and Tisdell (2015, p. 256-257) indicated that qualitative research can also be made more reliable through thorough description and analysis of the data. This could be more convincing to future readers of the data to determine how useful and applicable the research is for their own use. To this end, the researcher made certain that the data was accurately constructed to provide as much information to readers of the study or to researchers who seek to implement similar knowledge sharing strategies.

In conclusion, this section explained and discussed the impact of reliability and validity on research studies. Mitigation strategies, such as allowing the participants to review their answers and providing all participants with a fair opportunity to enlist in the study, that the researcher employed to secure reliable, valid, and credible findings were also discussed.

3.2.8 Ethical considerations

According to Merriam and Tisdell (2015, p. 260), the more you comply with good ethical practices, the more trustworthy, reliable, and valid the overall research study will be. This section aims to discuss how the researcher ensured that all ethical implications of this study were considered.

Research studies, especially qualitative studies that involve interviewing and observing people, can have various ethical implications, especially during the data collection and data analysis phases of the study (Merriam & Tisdell, 2015; Gibbs, 2007). Researchers should consider how they will recruit and protect participants (Pickard, 2017; Gibbs, 2007), how

interview questions can impact the participants (Merriam & Tisdell, 2015; Pickard, 2017), and how data will be analysed and stored (Mertens, 2014; Gibbs, 2007; Merriam & Tisdell, 2015). The following list expands on these ethical considerations and indicates how the researcher implemented these considerations in this study:

1. **Recruiting participants:** To recruit participants, researchers need access to them, to provide them with detailed information on what the study will entail and what will be required of them, and to ask them to consent to contribute to the study (Gibbs, 2007; Pickard, 2017). Initially, before any data collection was conducted, the researcher submitted an application to the Department of Information Science and the Research Ethics Committee of the University of Pretoria for review and approval (see Appendix B). Then, written permission from the consultancy to interview their consultants was granted by the manager of the department that was investigated. Last of all, the targeted participants at the consultancy were emailed with details on the study, what it involved, and how they could partake if they wished to. This email also included an informed consent form that detailed what the study was about, potential benefits and risks of the study, and how their information would be kept confidential and anonymous. Participants were requested to sign the form as written consent of their participation.
2. **Protecting participants:** Anonymity and confidentiality are important aspects to keep in mind when collaborating with people (Pickard, 2017, p. 93). Anonymity implies that the participant will remain anonymous, which is not always entirely possible if the researcher has to interview the participant and ask them questions (Pickard, 2017, p. 93). On the other hand, the researcher for this study also work with the participants at their place of employment, and therefore anonymity will also not be possible. Confidentiality, on the other hand, can be thoroughly applied to participants as this implies that no identifiable data will be included in the study, from naming files and recordings to including data from interviews in the final report (Pickard, 2017; Gibbs, 2007).

   In this study, names and other personal information of the participants and the consultancy itself were not recorded. All participants were given anonymous descriptors that mask their identity (i.e. “Participant 1”), and the organisation is

referred to as "Company A." All discussions of the findings maintained confidentiality to protect the participants. The data from the data collection period was recorded accordingly, so that none carries any evidence of the true identity of the participants, and it will be stored on Figshare for proper curation and safekeeping. The level of sensitivity of the collected data (once filtered) will be extremely low and carry negligible risk. Furthermore, involvement was completely voluntary, and participants were made aware that they had the choice to stop the interview at any time or refuse to be recorded, as well as to decline any questions they felt uncomfortable answering.

3. **Interviewing participants:** According to both Merriam and Tisdell (2015, p. 261-262) and Pickard (2017, p. 93-94), questions asked during an interview could make participants feel uncomfortable, make them question themselves, and could result in them revealing information they did not want to. For this study, participants were informed that none of their answers would impact their work environment or position within the company, that their participation was completely voluntary, and they did not have to answer any questions they were not comfortable with, adding that they could retract any statements they did not want to reveal. Participants were also asked to review the transcriptions of their own interviews to ensure that all data about them have been accurately represented.
4. **Storage and analysis:** Some issues that can arise with the storage and analysis of data include keeping personal information anonymous. This can be overcome by ensuring that transcriptions and files are stored securely and contain no personal details (Pickard, 2007; Gibbs, 2007). The researchers own biases can contribute to how they interpret and present the data, even if they do not notice this themselves (Merriam & Tisdell, 2015, p. 264). Another issue is the future use of the data, which can include publication of the study and use of the study by other researchers which in turn means that a wider audience can reach the data and draw conclusions from it (Merriam & Tisdell, 2015; Mertens, 2014).
5. For this study, all data, transcriptions, and audio recordings will be stored on the University of Pretoria's repository and Figshare to ensure that the data is securely stored, and the researcher will also ensure that all stored data is anonymised. Additionally, the researcher was vigilant throughout the data collection and analysis of their own biases. To the best of their abilities, the researcher verified that all data

was included in the analysis of the study, even if it might have impacted the results by not agreeing with the initial theories presented. Finally, although the researcher has no control over how the study could be interpreted or used by others, the analysis was thoroughly conducted and all data has been presented to ensure future researchers have a clear understanding of what the study entailed and what the final results were. All information about participants and the consultancy itself has been kept confidential also so that no future researchers or readers can derive any identifiable information from the study.

In conclusion, this section discussed the steps the researcher took to ensure that the research was conducted ethically. This involved obtaining permission to conduct the study from the University of Pretoria, the consultancy, and the participants; ensuring participants' confidentiality and anonymity as far as possible; handling the interview process with sensitivity; and securely storing the data and ensuring that all final data included in the study are accurately and thoroughly described.

3.2.9 Background on this study's chosen IT company

The IT consultancy involved in this study mainly focuses on implementing payroll systems, clocking systems, and human resources (HR) systems. Although this is a global company, this study focused only on the South African branch that is divided into three departments, which are referred to as 'practices.' These departments comprise both functional and technical consultants at various levels, from interns to senior consultants, as well as managers and partners. Each of the functional and technical consultants fulfil separate roles on projects and work with different areas of the software, forming smaller teams as part of the bigger project team. The more senior consultant in the team will then function as the team lead for that area. At the end of a project, the main project team will hand over their work to a support team that assists the clients with any system requirements or queries after they are live and actively using the system.

Considering that the study investigated how consultants share knowledge, aiming to develop a knowledge sharing strategy that those in the chosen IT consultancy can benefit from, this study only aimed to collect data from consultants who were still actively consulting in one

specific department. Therefore, the following positions formed the sample group: interns, associate consultants, consultants, and senior consultants.

3.2.9.1 Ethical considerations for the IT consultancy

Due to the nature of the company, they oversee sensitive data for many clients across the globe. The researcher took care to not ask any questions that could disclose such sensitive information. The researcher was particularly careful with protecting any sensitive information that was unintentionally revealed by participants during their interviews, such as client names and details, software, or personal information about anyone either employed at the IT consultancy or their clients. Any sensitive and identifiable information that was revealed was renamed in the transcripts, for example, “Project A” or “Software A.”

3.3 Conclusion

In Chapter 3, the strategy for undertaking the study was presented through the research design. The research design included various methodologies that formed the foundation for the study and included the following: Different research paradigms were discussed, and the paradigm of an interpretivist approach for this study was chosen and justified. Then, various research approaches were described, with a quantitative approach being selected for this study. As this study aimed to evaluate the different knowledge sharing activities, preferences, and barriers of IT consultants in a specific IT company, the research method chosen was a single descriptive case study. Additionally, the sampling method chosen was purposive as the research sample was determined by the participants’ relevancy to the case study. The population and sample, therefore, include IT consultants from a specific department within the specific IT company. To collect data from the population, semi-structured interviews were chosen as an appropriate data collection method as this provides the researcher with a guide of which questions to ask but also allows for follow-up questions, gathering more data. To analyse the data, a thematic analysis was chosen to divide the data into similar themes. To finish, this chapter also expanded on the measures taken by the researcher to protect the participants and how the researcher guaranteed that appropriate measures are in place for the study to be reliable and valid.

4. Data Presentation

4.1 Introduction

This chapter presents the application and findings of the research design presented from Chapter 3. The study was conducted between October 2022 and May 2023, starting with the ethical clearance process, then consent from all parties involved was acquired, participants were selected and interviewed, and the collected data was analysed.

In this chapter, an overview of the research questions is reiterated, the steps taken before and during the data collection process are discussed, and the findings from the interviews with the participants are given and reviewed.

4.2 Research Questions and Aim of the Study

The main aim of this study was to gather data that would assist in developing a knowledge sharing strategy for a South African IT consultancy. Through the data gathered from both the literature review and the empirical qualitative data collection, the following questions were answered by the researcher to attempt to develop a knowledge sharing strategy that IT consultants could benefit from. After the initial presentation of the findings in Chapter 4, the research questions are further discussed and answered in-depth in Chapter 5.

The main research question was established to aid in the development of a knowledge sharing strategy, and, therefore, it asks:

> *What is required for a knowledge sharing strategy for IT consultants?*

These sub-questions were established to support answering the main research question:

1. RQ 1: How can knowledge sharing be defined?
2. RQ 2: What are the benefits of sharing knowledge?
3. RQ 3: What factors can hinder knowledge sharing?
4. RQ 4: What are the most important aspects of a knowledge sharing strategy?
5. RQ 5: What current knowledge sharing practices are used in the chosen IT consultancy?

4.3 Data Collection Background for the Empirical Component

The data collection process for this study started in October 2022 with an application for ethical approval, which was submitted to and approved by both the Department of Information Science and the Research Ethics Committee from the Engineering, Built Environment, and Information Technology faculty of the University of Pretoria. In conjunction with this, formal consent was also procured from both the company that was studied and the participants interviewed. This section the process of selecting and interviewing participants and the data collection and analysis process.

4.3.1 Participant profiles

The participants for this study were recruited based on certain criteria, which the researcher deemed as relevant for answering the research questions and achieving the purpose of the study. See Section 3.2.4 'Research population and sample' for more about the research behind the development of this criteria. The following sections detail how participants were recruited, protected, and interviewed.

4.3.1.1 Selecting participants

The researcher reached out to participants that met the following criteria:

a) **Length of employment:** Participants had to be employed at the IT consultancy for longer than a year. This criterion ensured that the participants were familiar with the organisation's processes and projects, and that they had some experience with knowledge sharing within the organisation. This IT consultancy also mostly recruits graduates directly out of university, and therefore, participants who have been employed for less than a year may not have had any relevant prior experience at other organisations that could have assisted in the study.
b) **Department:** Participants had to have worked for a specific department in the organisation. This criterion was chosen to narrow down the selected participants. It was also the department that the researcher was employed in and had access to.
c) **Type of position:** Participants had to have actively worked as consultants, whether they were interns, associate consultants, consultants, or senior consultants.

Employees who were managers or partners were not selected as the study intended to only interview current consultants who could actively identify any knowledge sharing issues that currently affect their projects.

4.3.1.2 Recruiting participants

The employees that met the above criteria were informed of and invited to join this study via email a few months ahead of the start of the study. The aim was to provide background on the study to participants, prepare them for the study, and allow them to decide if they would like to contribute. The email included the background of the study, the interviewing process, and information on consent and privacy protection.

Following the formal ethical approval from the University of Pretoria's Research Ethics Committee (Appendix B: Letter of Consent from Ethics Committee), potential participants were once again contacted via email with a formal request to partake. This email included the interview questions, a consent form, and details on the study and interview process. Out of the 30 employees initially contacted, 12 participants agreed to be interviewed, and all participants agreed to be recorded as well. The final group of participants was defined as follows: six technical consultants (of which one was an intern, three were associate consultants, and two were senior consultants); and six functional consultants (comprising one associate consultant, three consultants, and two senior consultants).

4.3.1.3 Interviewing participants

Once the participants sent the researcher their signed consent forms, the researcher contacted the participants privately to establish an interview session of 30-45 minutes via Microsoft Teams. This collaboration application also recorded and transcribed the interviews. At the start of each interview, the researcher reiterated the purpose of the study and defined commonly used terms to ensure that the participants understood the questions. The interviews were divided into three sections: the first section aimed to gather data on the participant's years of experience at the IT consultancy; the second section was designed to gather data on the participant's personal experience with knowledge sharing at the IT consultancy; and the third section targeted data gathering on knowledge sharing within their whole organisation.

4.3.1.4 Protecting participants

Protecting the privacy of the participants was one of the main priorities of the researcher. Before interviews were conducted, the researcher ensured all participants knew what the study entailed – that participation was voluntary, and that they could stop the interviews at any time or refuse to answer certain questions. Participants were also ensured that none of their answers would be revealed to other participants or to the organisation. The names of the participants were anonymised by renaming each participant "Participant 1", "Participant 2," and so on, and if another employee was mentioned by one participant, their names were changed to "Colleague A", "Colleague B," and so forth. Although all participants agreed to be recorded, they also had the option to not be recorded and for the interview to be manually transcribed. Transcriptions from Microsoft Teams were manually edited by the researcher to ensure that no personal or sensitive data was revealed and that all participants, organisations, software, employees, clients, or any other identifiable information were anonymised.

4.4 Data Collection Findings and Presentation

This section discusses the findings and analysis of the data collected through both the interview process and the literature review. Starting with the interviews, this section describes the data that was gathered from the participants, the analysis thereof, and then discusses the findings based on certain themes that were identified during the analysis process. Each theme describes the main points of interest and how each of the interview questions correlated to the identified themes.

4.4.1 Findings from the interview process

This section examines the findings of the interview process while focusing on each question individually. Each interview was divided into three sections: a) background information on how long the participants have worked at the IT consultancy; b) participants' own experiences with knowledge sharing, knowledge management, and knowledge conversion; and finally, c) knowledge sharing practices of the consultancy from the participants' points of view. Across these three sections, 16 questions were asked, which resulted in five main identified themes.

4.4.1.1 Work experience of the participants

The first section of the interview was one question, which aimed to gather data on the participants' years of experience at the IT consultancy. This data would find a correlation between their experience level and knowledge sharing tasks or activities. Most participants had more than three years of experience, while only two had less than two years of experience at the organisation.

Comparing this to the knowledge sharing tasks and activities of the participants, the following conclusions were reached: All consultants oversee knowledge management and knowledge sharing, but the participants with more experience tended to have a more structured way of managing and sharing knowledge that they tend to repeat for every project. For example, Participant 4 (with 10 years of experience) would usually mentor junior consultants on projects and was responsible for writing project closure documents to detail the solution that was implemented for the clients. Participant 6 also had 10 years of experience and would train the junior consultants on the standard project documentation and archive the documentation for future projects. Then, Participant 12, who had eight years of experience, drew diagrams of commonly used system processes and shared them with other consultants and clients; they also document and explained all system changes and solutions to the client.

For the least experienced consultant, with one year and two months of experience, Participant 3 would create knowledge-based articles to document changes made on the system and solutions to common problems. They would also store these documents on a repository and share these articles between the colleagues on their projects. Participant 3 also indicated that the repository has helped them to find information more easily. Participant 5, who has one year and four months of experience, asked their project leads for documentation of the system or went through the system by themselves to generate documentation on all the configurations of the system. Participant 5 also established sessions with their team leads before a project to allow the more senior consultants to share knowledge with them.

In conclusion, the participants with more experience tended to focus on sharing knowledge with other consultants and clients, while those with less experience tended to focus primarily on seeking knowledge from other consultants.

4.4.1.2 Participants' experience with knowledge sharing, knowledge management and knowledge conversion at the IT consultancy

Section 2 of the interview (see Appendix A: Pre-prepared Interview Questions) gathered data on the first-hand experiences of the participants about knowledge sharing, knowledge conversion, and knowledge management at the IT consultancy. Eight questions were asked, with a focus on the tasks and perceptions of the participants on these aspects of knowledge management. Below are the findings for each question.

a) Before, during, and after projects: Knowledge management tasks of participants

Question 1 in Section 2 asked the participants to elaborate on the knowledge management tasks they conduct before, during, or after projects. Although the question focused on knowledge management, the participants responded with a combination of their knowledge management and knowledge sharing tasks. From the participants' responses, most knowledge management tasks are conducted during projects, but the task that was conducted by the most participants was end-of-project documentation and knowledge transfer.

The table on the following page indicates the different tasks conducted by the participants before, during, and after projects. All the tasks that were mentioned by the participants are included, even if they were not related to knowledge management specifically.

Table 5. Knowledge Management Tasks Conducted by Participants

Project Timeline	Tasks Conducted	Findings
Before projects commence	Standard software documentation	Participant 6 indicated they mostly gather standard software documentation (which is written by the company that owns the software) before a project, which they store both locally on their laptop and on a shared Microsoft Teams folder. As the software gets updated and changed, the documents are replaced with the latest versions. This documentation is then reviewed before and during the project with the project team to assist with the project implementation.
	Personal documentation	Participant 5 indicated they gather documentation from other consultants, clients, and online resources before a project to familiarise themselves with the software they would work with. They also run through the system and document all the specifications. These documents are stored locally and only shared with other consultants if they request it.
During projects	Email archives	Participant 6 mentioned they archive and organise their emails into different folders to easily refer to them if they need to, although they also mention that consultants who were not included in the emails cannot access any information shared.
	Documentation of specific issues	Participant 1 created documentation of either unique issues that do not occur often or problems that do occur often and can be benefitted from at a later stage or by other teams. Participants 7 and 9 make use of OneNote or Microsoft Word to store screenshots, notes, links, and other useful resources they found while working on projects, although these documents are not shared with the larger company unless another consultant requests assistance.
	Onboarding courses	Participant 2 worked as part of a team that created virtual onboarding courses that could be used by new team members (for example interns) to learn about the software they would work with. These courses and repositories only provided a theoretical understanding of the work, and although it was extensive, the participant preferred to have a direct person to call when they had a question.
	Training and boot camps	Participant 10 indicated that they write up documentation for “boot camp training” to train other consultants in using the software that their team works with.

	Project specification documentation	Before the start of a project, consultants write functional and technical specification documents and blueprints that explain the changes that will be made to the client's HR and payroll systems. These documents are updated during the project as well and stored in a central repository.
	Repositories and Centres of Excellence	Participants 1, 6, and 10 mentioned 'Centres of Excellence'. Within the IT consultancy, the consultants are divided into teams based on their specialities. These teams are called Centres of Excellence, where they gather and share knowledge amongst each other to progress their skills within a specific area and enhance project delivery. This is a new initiative that the organisation is implementing, where every 'Centre of Excellence' also has a repository for each team to store their software documentation, training material, and project specifications. Only team members that work with the same software or on the same projects have access to these repositories. The consultants also refer to these repositories as their 'Centres of Excellence sites'.
	Knowledge-based articles	Participant 3 indicated that they draft knowledge-based articles, which are stored on a repository for the project team to access. They also refer other consultants to these articles if they discover similar issues or have similar tasks that they need to conduct.
	Check-ins	Participant 8 mentioned that their team organise weekly or bi-weekly check-ins to discuss any problems they have encountered during the week that they may need assistance with. They use these check-ins to discuss any project-related issues and to find solutions.
After projects	Lessons learned documentation and knowledge transfers	Participants 4, 5, 6, 8, 9, 10, and 11 mentioned that they create "lessons learned" documentation after the completion of a project. This documentation is either made by the consultants' own initiatives or requested by the project manager. The documentation is then shared with the clients and stored in the Centre of Excellence repositories for each project team. Some participants indicated that they could benefit from the lessons learned documentation of other teams and projects, but they rarely have access or do not know where the documentation is stored. The lessons learned documentation also goes hand in hand with knowledge transfer documentation; at the end of a project, the main project team hands over the project to the support team and provides them with the knowledge transfer documentation, presentations, spreadsheets, and meeting recordings to provide an overview of the project and enable them to continue with the project. One

		participant also mentioned project closure documentation that they create for the client specifically.
	Configuration breakdown	Participant 12 indicated that they create a document that explains the system configuration to the client. This is specifically created for the client to use as a manual to use their system and understand its functionality. It also assists the consultant in identifying any potential issues, which they can correct before the client starts to use the system. Furthermore, the participant documented any changes to the system after project completion and provided this documentation to the client; they kept copies of such documents in case they needed to return to these in other projects.

b) Before, during, and after projects: Knowledge sharing tasks of participants

Question 2 of Section 2 enquired about the knowledge sharing tasks that participants conducted during or after projects. For this question, participants also indicated a combination of knowledge sharing and knowledge management tasks. As specified by the participants, there are an equal number of tasks conducted before and during projects, and that the least number of tasks are conducted after projects. Some tasks run before, during, and after projects are also related, for example, knowledge sharing sessions, training, mentorship, and knowledge transfer, which all involve direct interaction between consultants or consultants and clients.

The following table summarises the different tasks that the participants handle before, during and after projects. The table includes all tasks that were mentioned in the responses, even if they were not related to knowledge sharing.

Table 6. Knowledge Sharing Tasks Conducted by Participants

Project Timeline	Tasks Conducted	Findings
Before projects commence	Knowledge sharing sessions	Participant 5 said that they organise knowledge sharing sessions for themselves before they start on a project to ensure that they have the knowledge they need to begin.
	Standard software documentation	Participant 6 indicated that they take their team through the standard documentation of the software to ensure that the team understands what is required from them, where to find the documentation that they may require for the implementation, and to answer any questions they may have before the project starts.
	Training and boot camps	Participants 9 stated that they have compulsory training sessions once a month on a Friday for the whole department, where they share knowledge on current projects, issues they resolved on projects, or anything new they have learned on a project. Participant 10 also implements boot camps for more junior consultants to assist them with taking on a supporting role in the project. These boot camps entail explaining what the requirements is, how the system was implemented, what the functionality of the system is, and how to solve some of the recurring issues.
	Sharing project-related documentation as templates	According to Participant 12, teams on different projects tend to reuse official project documentation as "templates" if they need to know what a certain document should contain or how it should be formatted. Although, they mentioned that these types of documents are shared with the client and only shared with other teams when required.
	Diagrams to explain processes	Participant 12 also creates diagrams of common processes and system functionalities, which are frequently built for clients. The consultant uses these diagrams themselves on the next project but are also shared with other consultants to assist them with the implementation of the project they are working on or will be allocated to.
During projects	Sharing links and resources	Participant 1 shares links and resources with their team via Microsoft Teams or uploads these resources to Microsoft SharePoint and will notify their team about them if they believe it is something that might benefit the other consultants.
	Documenting work for future use	Participant 2 documents their work on projects to share with new employees joining the company and to assist others in future projects. They did mention that they only do this when they have time and

		that this may be a hindrance to knowledge sharing as time constraints can prevent them from participating in knowledge sharing.
	Sharing and uploading project-related documentation	Participant 3's team creates documents on lessons they learn throughout their projects, which they upload to their Centre of Excellence site to share with other team members. They also have sessions to discuss these documents and learn from the problems they had to resolve on the projects. Participant 9 creates "error documents" that explain certain software or system issues they found during projects and how they resolved these issues. Although this was mandatory for one specific project, they still refer to the documents or send them to colleagues when they need assistance.
	Mentorships	Participant 4 stated that team leads are usually tasked with mentoring junior consultants on projects to assist them with their work. With mentoring other consultants, senior consultants are obliged to share knowledge with their colleagues.
	Text chats	Some employees use the text chat functionality on their Centre of Excellence repositories/sites to ask questions to their colleagues or to answer questions, as held by Participant 7. It is also noteworthy that this might be difficult to navigate if they would like to search for a specific question that was already answered.
After projects	End-user training and knowledge transfer	After a project has ended, consultants hand over to a support team to assist with any additional issues on the new systems. This requires knowledge to be transferred from the main project team to the support consultants. The consultants also need to transfer knowledge and train the clients on the system functionality so that the clients can know how to use the systems and perform basic tasks such as hiring new employees, approving leave requests, and pay their employees. Participant 11 stated that these sessions are usually presented to the client via Microsoft PowerPoint slides and an accompanying document with more detail on the system's functionality.
	Fill-in templates	Participant 8 indicated that some teams receive a link to a knowledge sharing document that they need to fill in and store on a Microsoft SharePoint. This could be used as a template for the consultants to document what they have learned and share it with their colleagues.

c) Before, during, and after projects: Knowledge conversion tasks of participants

The third question of Section 2 of the interview requested that participants describe the knowledge conversion tasks that they conducted before, during, or after projects. The participants indicated many of the same knowledge sharing tasks from the previous question, which might indicate that the participants interpret knowledge sharing and knowledge conversion to be the same, not having a clear indication of the differences between the two concepts. Although the participants pointed towards similar tasks, fewer unique tasks were mentioned. Main themes in the responses also included training, mentorship, and knowledge transfer. Only one participant indicated that they do not perform any knowledge conversion tasks.

The table below provides a summary of all the knowledge conversion tasks that the participants mentioned that are conducted before, during, and after projects.

Table 7. Knowledge Conversion Tasks Conducted by Participants

Project Timeline	Tasks Conducted	Findings
Before projects commence	Training	8 out of 12 participants mentioned training as a knowledge conversion task they conduct or involve themselves in. Every second Friday of the month, the consultants play a part in mandatory training that is split between the functional and technical consultants and can also be split between the different specialities of the consultants (payroll, HR, time-off, integration, etc.). These training sessions can range from discussing unique issues that were found on projects (Participant 1) and sharing specific experiences or knowledge that they have gained during the month or week (Participants 3 and 8). These sessions are also normally recorded and uploaded to the Centre of Excellence Microsoft SharePoint sites of each team. Other training will be discussed in further detail below as it forms a part of a different main task that the consultants perform.
	Standard software documentation training	Participant 6 mainly directs their team and the clients to the standard software documentation to explain to them what would be implemented, how it will be implemented, and which documents they can read if they have a system issue on the project.
During projects	Mentorship and check-ins	Participant 12 indicated that they partake in knowledge conversion in two ways: first, they are part of a group that train interns that join the company at the beginning of each year; and they mentor interns and junior consultants by arranging weekly check-ins at the office to assist them with any of their tasks or to find a solution for issues they have found. Participant 12 also indicated that the knowledge that they share is mostly technical tacit knowledge about the functionalities of the systems. Additionally, Participant 1 specified that senior consultants would train the more junior ones if they had any difficulties with projects but that this required the junior consultants to reach out for assistance.
	Text chats	According to Participant 7, consultants use the text or chat feature of the Centre of Excellence channels to ask questions to team members or to propose solutions to issues they have encountered on their projects in case their colleagues may benefit from it.
After projects	Cheat sheets and diagrams	Participant 4 said that their knowledge conversion tasks include creating “cheat sheets” of common processes and training their colleagues on these processes to assist them in implementing systems for the clients.

	Knowledge transfer and end-user training	Participants 5 and 11 conduct knowledge transfer sessions between colleagues and between consultants and clients. This includes presenting end-user training, explaining the system functionality and implementation to consultants and clients, and organising sessions with other consultants to understand the systems better and what the projects are about.
	Blueprints and documentation	According to Participant 10, blueprints assist them in understanding how previous and current projects are implemented for them to take over easily from other consultants or to assist them with new projects. They also find value in sharing knowledge with a larger group, and ensuring that all consultants have access to documents and to a central space or repository, where all the documents are stored and where all consultants have access.
Other	No tasks	Participant 2 indicated they do not perform or join in any knowledge conversion tasks, but they see the value in documenting knowledge and making it accessible to new consultants who are joining the company or the projects on which they work.

d) The value of knowledge sharing and knowledge conversion

Questions 4 and 5 of Section 2 of the interview asked participants to evaluate how much they value knowledge sharing and knowledge conversion on a scale from 1-3, where 1 is “not valued”, 2 is “slightly valued”, and 3 is “highly valued”. Most participants indicated that they highly value knowledge sharing and knowledge conversion; however, there does not seem to be a correlation between the participants’ experience at the organisation and the value they attach to knowledge sharing and knowledge conversion. Even though the participants only had to indicate a number on the scale, most provided justification for their answers. Two participants who indicated no or a low number on the scale did mention that they understand the value that knowledge sharing and knowledge conversion can have. Participant 1 did not indicate a justification for the low rating, whereas Participant 7 mentioned that they can more easily find answers online and that time constraints prevent them from sharing knowledge.

The table below provides the participants’ value of these two concepts and presents any justification for their answers.

Table 8. Value of Knowledge Sharing and Knowledge Conversions

Participant	Knowledge Sharing Value	Knowledge Conversion Value	Justifications (If provided)
Participant 1	3 (Highly valued)	2 (Slightly valued)	No justification provided.
Participant 2	3 (Highly valued)	3 (Highly valued)	Participant 2 shared that they could have benefitted from knowledge sharing and knowledge conversion if it had been easier to receive knowledge without taking time out of other consultants' days for assistance.
Participant 3	3 (Highly valued)	3 (Highly valued)	Participant 3 indicated that they highly value knowledge because it resolves future issues on projects faster and more easily.
Participant 4	3 (Highly valued)	3 (Highly valued)	No justification provided.
Participant 5	3 (Highly valued)	3 (Highly valued)	No justification provided.
Participant 6	-	-	Participant 6 did not provide a specific rating but mentioned that they believe that it is important for consultants to learn together and share their knowledge with each other. They believe that all consultants have their own strengths and that withholding knowledge will not benefit anyone. They also revealed that there can be competition between consultants, which could prevent knowledge sharing.
Participant 7	1½-2 (Not valued to slightly valued)	1-1½ (Not valued)	Participant 7 stated that, although they understood that knowledge sharing can be highly valuable on projects and assist in completing tasks faster if a problem has already been resolved, they do not necessarily see the value in knowledge sharing if they can easily find solutions online. For knowledge conversion, they indicated that they do not have time to prioritise this and, therefore, do not value it, although they would see the value in knowledge conversion if they had more time for it.
Participant 8	3 (Highly valued)	3 (Highly valued)	Participant 8 values knowledge sharing as they believe it helps them to solve problems faster.
Participant 9	3 (Highly valued)	3 (Highly valued)	No justification provided.

Participant 10	3 (Highly valued)	3 (Highly valued)	Participant 10 indicated that, although they value knowledge sharing, they also believe that everyone should participate equally and be willing to do their own research and learn from knowledge sharing.
Participant 11	3 (Highly valued)	3 (Highly valued)	No justification provided.
Participant 12	3 (Highly valued)	3 (Highly valued)	Participant 12 indicated that they do not believe the organisation is highly successful at knowledge sharing and knowledge conversion, but they personally do value it highly. They equally believe that the company's success and the wellbeing of the employees depend on effective communication and knowledge sharing.

e) The value of a person's knowledge versus the value of knowledge from information sources

Question 6 in Section 2 of the interview asked participants if they would value a person's knowledge more than other information sources, for example, books on best practices, journal articles, or YouTube videos. Most participants value the knowledge from people more than knowledge from other information sources because asking a colleague for assistance can lead to more contextual and specific knowledge, and their colleagues also tend to understand the client's requirements more, particularly on custom implementations. This question also gave insight into the preferences of the participants for seeking knowledge.

The following table summarises the feedback from each participant.

Table 9. The Value of a Person's Knowledge versus the value of knowledge from other Information Sources

Participant	Value By Source	Findings
Participant 1	Knowledge from people	Participant 1 values the knowledge of people more than other sources, stating that the consultants they work with have more context about the specific project and client they are working with, whereas sources outside of the organisation might not be exactly what they require for their project.
Participant 2		Participant 2 also indicated that they prefer knowledge from people and would prefer to talk to a colleague about a specific problem as they find more value in the person's perspective.
Participant 3		Participant 3 mentioned that other consultants with experience and knowledge about a specific project or subject are more valuable to them than other knowledge sources.
Participant 4		Participant 4 feels that "knowledge transferred from a person that [they] know is more tangible," adding that it makes more sense to them when the person transferring the knowledge can tailor the answer to their needs.
Participant 7		Participant 7 said that knowledge from other consultants is more valuable to them because the knowledge is contextual to what they require on the project. They also believe that this knowledge can be "quicker to implement or maybe easier to understand."
Participant 8		Participant 8 stated that having a one-on-one conversation with someone helps them understand a solution to a problem better, and that they prefer immediately getting a response, whereas online forums do not always present immediate answers.
Participant 9		Participant 9 searches for online knowledge-based articles first to see if they find a solution to an issue but added that they value a person's knowledge more because it can be more specific to what they need and can lead to better working relationships.
Participant 10		According to Participant 10, most of the project implementations contain custom solutions, which make it harder to retrieve contextual content from other sources and easier to retrieve knowledge from colleagues that have more context on the client.
Participant 11		Participant 11 also indicated that they value a person's knowledge more if they know the person who drafted a specific article and can interact with them in person.
Participant 5	Both people and other	Participant 5 believes that knowledge transferred from another person may be more in-depth than the

	sources	knowledge contained in books, but they consider it to be beneficial to have both.
Participant 6		Participant 6 prefers both knowledge from people and knowledge from other sources, but they also state that they prefer the knowledge from someone they know and trust or peer-reviewed sources from experts, such as standard software documentation.
Participant 12		Participant 12 prefers books, online resources, and even artificial intelligence systems and mentioned that these can be highly valuable to them, but some knowledge is tacit and cannot be contained in these systems as they depend on experience. They, therefore, indicated that they value both people and other knowledge sources equally.

f) The personal benefit of knowledge sharing on projects

Question 7 of Section 2 aimed to gather information from the participants on how they personally benefited from knowledge sharing on projects. As with Question 6, the majority of participants stated that they have received the most benefit from knowledge sharing while interacting with their colleagues. Some participants also revealed that knowledge sharing has assisted in faster solutions on projects, allowed for delegation to new employees, and created a knowledge sharing culture within the organisation.

The following table summarises the aspects of knowledge sharing that the consultants identified as beneficial to them on a personal level.

Table 10. Personal Benefits of Knowledge Sharing on Projects

Participant	Identified Benefits	Findings
Participant 1	Proficiency, personal growth, and faster solutions	As someone with whom knowledge has been shared, Participant 1 finds that knowledge sharing enables them to work faster on projects and to be more proficient. Knowledge sharing has also given Participant 1 insight into their personal growth when they perform the sharing because they strive to ensure they have adequate knowledge to assist others and to improve their personal skills to make junior consultants feel more comfortable when asking them for assistance.
Participant 6		According to Participant 6, knowledge sharing can be beneficial in three ways: first, Participant 6 can have confidence in the other consultants to do their work if they have shared their knowledge before the start of the project. Second, consultants also have confidence in themselves when they know they have been trained beforehand. Third, knowledge sharing enables consultants to deliver faster solutions to their clients.
Participant 2	Interaction and learning from others	Participant 2 mentioned that knowledge sharing has helped them quite a lot in projects and that they benefit more from documentation and personal interaction with others when they are trying to learn something new. They explained that, on a specific project, they were required to participate in creating courses for newcomers on the project, which entailed recording the senior consultants present certain topics that were stored in a specific repository. This also enabled newcomers to know who has expertise in specific areas and to know who they can approach for assistance with specific issues.
Participant 3		Participant 3 has benefited from seeking documentation on their Centre of Excellence repositories, as well as from asking their colleagues for assistance if they need help solve a problem on a project.
Participant 4		According to Participant 4, junior consultants are added to projects with no prior knowledge of the work, and they, therefore, rely heavily on knowledge sharing to learn from more experienced consultants. As a more senior consultant, Participant 4 spends less time on system configuration and more time assisting and mentoring junior consultants by sharing their knowledge.
Participant 5		Participant 5 indicated that “a lot of information is very daunting” but that they can understand it better if someone is sharing it with them through personal interaction.
Participant 7		Participant 7 explained that being able to ask other consultants for advice and assistance on projects

		has saved them plenty of times, enabling them to provide faster solutions.
Participant 8		Participant 8 said that knowledge sharing has helped them learn how to work with new software because they could ask their colleagues for advice.
Participant 9		Participant 9 finds it beneficial to know who has the knowledge they need as this makes it easier to contact the person directly that will assist them. They also mention that there are few resources on the company's repository (apart from previous project documentation and templates), so they also need to reach out to colleagues to resolve errors on a system.
Participant 12	Knowledge sharing culture	Participant 12 indicated that, since the beginning of their career, there has been a culture of knowledge sharing at the organisation that encouraged communication with their colleagues on a business and a personal level for advice. This has helped their personal growth and the morale in the company.
Participant 4		Although knowledge sharing can be a time-consuming process, Participant 4 explained that all consultants started at a beginner level and that they became more experienced through senior consultants sharing their knowledge. As a result, Participant 4 shares their knowledge with others too. The "culture of consulting is based on knowledge sharing," they said, that does not only assist the recipient of the knowledge in growing more knowledgeable but also the knowledge partner.
Participant 10	Delegation	Participant 10 indicated that knowledge sharing has contributed to less workload as they can find solutions to problems faster and they can also delegate their work to other consultants who are trained.
Participant 12		Participant 12 mentioned that sharing knowledge with junior consultants has enabled the junior consultants to handle work on their own and solve problems independently, which has helped with delegating more work to them and making it easier for the participant to focus on their own work.
Participant 11	Knowledge transfer and lessons learned	According to Participant 11, knowledge sharing (as knowledge transfers and lessons learned) has helped them when starting new projects as they begin with a background of the project.

g) Knowledge sharing strategies

The next question of the interview asked participants to suggest any knowledge sharing strategies they would find helpful if implemented at Company A. Although most participants indicated that they prefer human interaction when sharing knowledge in Questions 6 and 7 from Section

2, they suggested many knowledge sharing strategies in Question 8 that pointed to interactions between consultants. Most of the participants suggested documentation and centralised repositories that they could access to find relevant documents. In answering this question, participants additionally discussed points on motivation and incentives and made comment throughout the interviews, which will be discussed in the next section

The following table summarises the suggestions made by the participants.

Table 11. Knowledge Sharing Strategies

Participant	Identified Strategy
Participant 1	Participant 1 suggested that frequent issues encountered on projects should be documented by consultants. This will prevent the need for senior consultants to repeat solutions to other consultants, and if assistance is still required after reviewing the documentation, the junior consultants can still reach out to the senior consultants.
Participant 2	Participant 2 indicated that using a wiki on one of their projects was helpful in the sense that it was in depth and that they could search for any issue they encountered to find documentation from other consultants. They were then also able to see which consultants had contributed to the wiki if they had further questions.
Participant 3	Participant 3 suggested the organisation standardise the format for shared documentation and that using standardised naming conventions for documents would make it easier to find knowledge.
Participant 4	For Participant 4, more frequent and structured training is a good knowledge sharing strategy. They also mention that consultants should commit to training for it to be successful.
Participant 5	According to Participant 5, a shared drive with documents would be helpful to them, as well as a document with notes, links, and bookmarks of helpful sources that they can peruse when they require assistance.
Participant 6	The software that the consultants work with has standard documentation, which gives a step-by-step explanation of how it should be implemented for clients, as well as identifying possible issues and how they can be resolved. Company A does usually strive to keep to the standard software before they build custom functionality. Participant 6, a team lead on projects, retrieves the standard software documentation before each project and takes the consultants on their team through this documentation for them to understand how the requirements should be implemented and where they can seek information if required. They suggest this as a good strategy with the following process: Creating a repository with all the relevant standard documentation; training the consultants on how to navigate the repository and documents; working with and supporting the consultants throughout the project; conducting a “lessons learned” session; and finally, archiving all the documents that were used and created during the project to reuse on other projects.
Participant 7	Participant 7 finds value in storing code that they could reuse on other projects and recommends this to other technical consultants. They suggest that the company allow consultants to fill out a short template of lessons they have learned on a project, and if the knowledge is deemed valuable for the rest of the team, they can receive more billable hours to document the solutions properly.
Participant 8	Participant 8 suggested monthly scheduled check-ins between teams in the department to discuss problems faced on projects on

	anything they have learned that month. These check-ins can be recorded and stored, and all consultants can be made aware of the repository where the sessions are kept.
Participant 9	According to Participant 9, it would be helpful to have a repository that everyone has access to where they can store documentation from projects, training sessions, and knowledge-based articles.
Participant 10	Participant 10 creates a OneNote document every year for new interns, where they store knowledge-based articles as a group. They only share this will others on the condition that they add to and contribute to the knowledge base. They have a meeting every Friday as a team to share new knowledge with each other.
Participant 11	Participant 11 suggested having a department-wide "rule" to conduct knowledge transfers and lessons learned at the end of projects and storing these documents in a central location.
Participant 12	Participant 12 proposed weekly meetings for each team where they can discuss any issues they are facing on projects. They also mention that a well-maintained repository could also be helpful.

4.4.1.3 The organisation's perceived knowledge sharing practices

The third and concluding section of the interview (see Section 3 of Appendix A: Pre-prepared Interview Questions) collected information on the knowledge sharing practices of the IT consultancy perceived from the participants' points of view. There were seven questions in this section, which focused on the knowledge sharing and knowledge management practices of the organisation, the difficulties and benefits of knowledge sharing and knowledge management, and the general perception of knowledge sharing across the organisation.

The following sections present the findings of each question.

a) Benefits of knowledge sharing to projects

The first question of Section 3 aimed to gather information about the participants views of knowledge and how it can be beneficial for projects in the organisation. Most participants indicated that knowledge sharing could enable consultants to implement projects faster, reducing replicating problems on projects. Some participants also said that less experienced consultants would work confidently on projects sooner if

they received a background of the work before the start of the project. Comparing this question to Question 7 from Section 2, less interaction between consultants may be necessary during a project if efficient knowledge sharing and knowledge management can occur beforehand. This would reduce the time spent searching for a person who may know the answer or awaiting a solution to a problem on a project.

The table below summarises the benefits of knowledge sharing for projects, according to the participants viewpoints.

Table 12. Knowledge Sharing Benefits on Projects

Participant	Identified Benefits	Findings
Participant 1	Faster solutions and fewer redundancies	Eight participants stated that sharing knowledge reduced redundancies on projects and enabled consultants to provide faster solutions for their clients. These participants all agreed that, if knowledge is shared amongst their colleagues, it assisted in faster problem solving on projects, which would mean that projects could be completed ahead of time, which would lessen the costs for their clients. With knowledge sharing, fewer consultants would run into the same issues that have been solved before without their knowledge and would, therefore, be able to find solutions to repetitive issues much faster. Therefore, knowledge sharing can lessen the workload of consultants, fast track processes through lessons learned recordings and documentation, and deliver better and faster solutions to clients.
Participant 3		
Participant 4		
Participant 5		
Participant 7		
Participant 8		
Participant 10		
Participant 2	Saving time on upskilling and onboarding	Four participants discussed sharing knowledge with new colleagues or providing them access to a knowledge base (including documents and recordings on lessons learned) would assist in faster onboarding and upskilling time. According to the participants, if new employees are upskilled before projects, project delivery times can be reduced, employees would be more confident in their work, and they would not have to rely too heavily on other colleagues to assist them with resolving common solutions. Clients would also be more satisfied when consultants are more knowledgeable and able to complete their work faster.
Participant 6		
Participant 9		
Participant 11		
Participant 12	Technical, business, and cultural knowledge	Participant 12 identified the importance of not only sharing technical knowledge to deliver projects to clients but also to share business knowledge on etiquette, client preferences, and business experience. They also mentioned “cultural knowledge” as creating a knowledge sharing culture so that employees can feel that they belong and can share knowledge on an emotional level. They said that culture is extremely important because most people work from home and are not in contact with their colleagues as much as they used to be.

b) Current knowledge sharing practices within the company

Question 2 of Section 3 of the interview gathered data on current knowledge sharing practices within the organisation. This question aimed to gather insight into the participants' perspectives on the current practices, if these practices work for them, or if they can be improved. The majority of participants mentioned monthly training sessions and their Centres of Excellence as current knowledge sharing practices in the organisation, although some participants mentioned that there is a decline in participation in these practices. This decline results from consultants not being able to bill for attending the training sessions or participating in adding knowledge to the Centres of Excellence sites, so they see no benefit in participating. The inexperienced and experienced consultants are trained together, which results in repetitive training sessions that may not benefit the more experienced consultants. Another hindrance to participation in the current knowledge sharing practices is also time: If the consultants are busy on their projects or have tight deadlines, they may not participate or attend training sessions, or even have time to assist their colleagues who may reach out to them for guidance.

Table 13. Knowledge Sharing Practices

Identified Practices	Findings
Centres of Excellence	Six participants discussed the Centres of Excellence as a current knowledge sharing practice within the organisation. Most participants mentioned that the Centres are not used for active knowledge sharing but for documenting and storing project-related information on the sites that could be used at a later stage. One participant believes that the repositories are rarely used and that there is little drive between consultants to partake in knowledge sharing activities.
Monthly training	The consultants have training sessions on the second Friday of every month, dividing into two groups (functional and technical) to receive training from other consultants. The training ranges from demos of current work on projects and new systems and new functionalities to instruction on frequent issues on projects or in new concepts they have learned (as revealed by Participant 9 in Question 2 of Section 2).
Informal assistance and training	Four participants revealed that, apart from formal knowledge sharing, informal training and assistance also occur during projects because consultants can ask their colleagues for assistance with or to train them on certain concepts.
Daily and weekly check-ins	Two participants mentioned that their teams do either daily or weekly check-ins to discuss their projects and their current work. These meetings are either at the office or virtual meetings, enabling the teams to resolve problems together or share what they have learned during the week.
Formal training	According to Participant 6, the organisation provides other forms of formal training, apart from the monthly training sessions, for example, boot camps for the consultants where they must perform certain tasks on the systems and training for the interns, which occurs once a year.
Mentorship	Within the organisation, each consultant is assigned a mentor who works in the same field or has the same speciality as them. They can discuss any problems or issues (related to the project or otherwise) with their mentors, who can then either assist them or guide them to someone that will assist.
Microsoft Teams and SharePoint	Participant 7 mentioned that they make use of the chat and notification functionality of Microsoft Teams to share knowledge with their colleagues (as though it is a wiki) or to post questions they may have. Participant 10 stated that they are not aware of formal knowledge sharing practices but that they use Microsoft SharePoint to post any knowledge they may think is relevant.
Onboarding	According to Participant 2, some teams have extensive onboarding programmes to train consultants before they start on a new project. The participant mentioned that they have only experienced this on one project before but that it was helpful to have a background in the system before they started working.

Project Sessions	Participant 9 indicated that their project managers would schedule 'lessons learned' sessions after projects to document all the changes and the aspects of the project that went well, as well as the features of the project that could have been managed better. This information could then be used for future projects. In some cases, the lessons learned meetings are scheduled after each phase in a project to ensure that the next phases could be handled more effectively.

c) Participants' experience with knowledge sharing difficulties

The third question of Section 3 discussed the difficulties that the participants have experienced with knowledge sharing in the organisation. Most of the participants mentioned time constraints as a recurring hindrance for knowledge sharing as they either do not have time to share knowledge and participate in knowledge sharing activities, or they have to wait for their colleagues to find time to assist them, both of which cause delays in problem solving. A few participants discussed a lack of participation in knowledge sharing as a hindrance because some consultants do not value it or see a benefit to sharing knowledge. Standout solutions to these two issues include gamifying the process of updating wikis and knowledge sharing platforms and allocating the knowledge management tasks to one person in the organisation. It should also be noted that some participants used the terms 'knowledge sharing' and 'knowledge management' interchangeably.

The following table provides a summary of the feedback from the participants.

Table 14. Knowledge Sharing Difficulties

Identified Difficulties	Findings
Awareness of knowledge amongst consultants	According to Participant 1, because most consultants now work from home and not the office, this has made it more difficult to have relationships with their colleagues, be comfortable in asking them questions, and to be aware of who knows what and who they can talk to if they need any assistance. Participant 12 indicated that there are communities of practice email groups available for consultants to use if they have any questions, but they are not used frequently for two main reasons: The first reason is that very few consultants are aware of the email groups, and the second reason is that, if they are aware, they might not know how to use them, who they are emailing, or if they will receive a response.
Involvement	According to Participant 2, newer consultants often lack the confidence to ask their colleagues for assistance as they may feel that they are disturbing them. Participant 3 indicated that they have experienced cases where other consultants are reluctant to co-operate, share knowledge, or work with them. Participant 5 experienced similar reluctance from some of the senior consultants as they believe that the junior consultants should learn by themselves. For Participant 6, consultants may be reluctant to share knowledge because of competition; they may believe that their knowledge provides them with an advantage over their colleagues and that they will lose that advantage if someone else has the same knowledge as them. Participants 7 and 10 both believe that knowledge sharing is not prioritised because consultants do not always see the value of it. Participant 11 also indicated that consultants do not necessarily want to contribute to formal knowledge sharing, if the same concepts are discussed and repeated in each session, so they recommend that knowledge should be presented differently based on the audience.
Documentation	Three participants indicated difficulties with documentation. Participants 3 and 5 have both experienced difficulties with understanding documentation and even with team leads not understanding the documentation to assist them. Participant 9 also pointed out that there is a lack of documentation and materials available for them to inspect when they experience problems on a project.
Time constraints	Eight participants mentioned difficulties with time constraints that prevent them from sharing knowledge. Participant 1 indicated that most difficulties they have experienced with knowledge sharing are that consultants do not have time to participate. They also said that their team lead works different hours from them because of overseas clients and, therefore, they struggle to reach them for assistance. For Participant 4, certain seasons are busier than others; therefore, consultants could sometimes expect a delay in response from their colleagues. They offered the solution for consultants to manage their time better and to inform their

	colleagues in advance if they would require assistance. Participant 6 also indicated that consultants tend to be overworked and not have time to share knowledge, even having to cancel their formal training sessions because they do not have time to prepare and present. This is in keeping with Participant 7's observation that there is no time between projects to share knowledge, and that when they find time, they might not remember exactly what they did on a project. Participant 8 stated that they do not have time to prepare for knowledge sharing sessions nor do they have time to research current issues that they face on projects. According to Participant 9, they tend to work on their issues for hours until they can find someone who has time and availability to assist them. Participants 10 and 12 provided similar responses to this question, stating that having one person in control of knowledge management in the organisation would be beneficial and could take some time constraints away from the consultants.
Motivation	Three of the participants mentioned difficulties regarding motivation as a hindrance to knowledge sharing. Participant 6 believed that some consultants do not see a benefit in sharing knowledge and lack the motivation to do so. They said that consultants could be motivated through gamification, where the consultants could receive gift vouchers for contributing to the wikis and knowledge sharing platforms, by having a process by creating knowledge articles (for example, a set guide on how to share knowledge so that they can understand where to begin), or by providing billable hours to the consultants who provide the most useful articles. According to Participant 8, a number of consultants are not willing to partake in knowledge sharing activities, although they also mention that the reason for this is mostly time constraints. Participant 11 commented that consultants need a "buy-in" to join in knowledge sharing sessions and that they need to see some benefit for themselves, otherwise they would not be keen to participate.

d) Participants' experiences with knowledge sharing difficulties

Question 4 of Section 3 gathered data on the knowledge management difficulties that consultants have experienced within the organisation. Most of the consultants identified issues of finding the right information and the maintenance of repositories as hindrances to knowledge management, with Participant 11 mentioning that a dedicated person for knowledge management would be beneficial (as per the responses from Participants 10 and 12 in the previous question). Fewer participants indicated time as a difficulty in knowledge management compared to knowledge sharing difficulties in Question 3, where most of the participants reported time constraints as a hindrance to knowledge sharing. Participant 12 was also in agreement with Participant 11 in the previous question, where they stated that the consultants need a buy-in and to

see the benefit for themselves before participating. Again, some participants used the terms ‘knowledge sharing’ and ‘knowledge management’ interchangeably.

The following table provides a summary of the responses received from the participants.

Table 15. Knowledge Management Difficulties

Identified Difficulties	Findings
Locating information	Most participants identified difficulties with finding the right information. Participant 1 spends a lot of time navigating documentation in search of anything relevant to their issue, or they will contact the person who wrote the most relevant documentation for assistance. They also mentioned that metadata can perhaps be added to the documents to make them easier to navigate. Participant 5 explained about a lack of documentation for them to consult if they run into problems on a project. According to Participant 6, their main problem with knowledge management is that other people often forget where knowledge is stored and that it may be difficult to navigate someone else's folder structures for documents. Participant 7 believes that locating documentation with relevant information is challenging, stating that it is much easier to find a person who may have the answer to an issue. Participant 9 indicated that they are not sure if documentation from training sessions is stored in a specific location, and it is, therefore, difficult to locate documentation from monthly training sessions.
Time	Three participants mentioned time as a hindrance to knowledge management. Participants 2, 5, and 12 all mentioned that consultants have limited time to either contribute to the knowledge base of the organisation or to provide documentation to their colleagues.
Interest in and prioritising knowledge management	Participant 2 mentioned that they have started creating a wiki with information about the project they are working on but that other consultants are not interested in contributing to the wiki. They also stated that it is easier to compile documentation at the beginning of a project and contribute to the knowledge base throughout the project than to create everything immediately. Participant 10 also finds that people do not prioritise knowledge management, which results in documents that cannot be located or shared with others.
Awareness and access	In addition, Participant 2 revealed that they have experienced difficulties with access to and awareness regarding knowledge management. They mentioned that there is no structure in place to store documents they have created, and if there is, others are not always aware of this or have access to the documents. Participant 9 has also raised that they do not know if training documentation is stored in a central place for everyone to access, and if it is stored, they do not think everyone has access to it. According to Participant 12, there should be more scheduled sessions for consultants to share knowledge as they believe everyone will be more likely to share and document knowledge if they know others will use it, rather than keeping it in a folder and hoping someone will need it in the future.
Maintenance and	Four participants mentioned difficulties with folder structures that hinder knowledge management. According to Participant 3,

repository folder structures	folder structures can become “messy” on larger projects if they are not managed properly. Participant 4 mentioned that they rely on their emails to find documents as they do not store or structure their own files and folders to locate documents easily. Participant 6 also indicated difficulties they have experienced with folder structures that do not have a logical flow or that are not organised properly. Participant 8 stated that it is necessary to organise and maintain folder structures, as well as ensuring that exit interviews and other knowledge sources are documented before a consultant leaves the company and the knowledge is lost. Participant 9 revealed that proper maintenance is required on repositories where all training materials should be stored, updated, and sent to the consultants on a recurring basis. They also do not receive any feedback on activities completed during training sessions and, so, cannot know how they can improve their knowledge. Participant 11 indicated that they always try to manage knowledge, but most of the responsibility falls on the team lead who does not always have time for it. They suggested that a dedicated person be in control of knowledge management, ensuring that repositories are properly maintained, and who can ensure that it is properly navigated within the organisation.

e) Knowledge sharing activities of different teams

Question 5 from Section 3 of the interview asked participants if they think some teams within the organisation have better ways of sharing knowledge than others. The majority of participants do believe some teams share knowledge better than others and provided examples of their experiences. The participants also indicated that more driven initiatives are needed to encourage all consultants to participate.

The following table provides a summary of the responses from each participant.

Table 16. Knowledge Sharing Activities of Different Teams

Participant	Do others have better ways of sharing knowledge?	Findings
Participant 2	Yes	According to Participant 2, some teams have accessible and user-friendly repositories where they store documents, while other teams rely on asking others for documents and for advice that is mostly shared on a Microsoft Teams chat.
Participant 3		Participant 3 provided that some teams have better communication, repositories, and check-in/training sessions than others. They also said that a lack of knowledge sharing between teams might be because of a lack of motivation.
Participant 4		Participant 4 indicated that some teams have repositories and Microsoft SharePoint folders where they store documentation, which makes knowledge more accessible. They also believe that people would be more willing to share and learn if they adapt to others' practices.
Participant 5		Participant 5 has experienced teams that believe it is better for consultants to acquire knowledge through experience and will not conduct handovers before projects, whereas other teams have ensured that the consultants are up to date on implementations before the projects start.
Participant 6		Participant 6 indicated that some teams have unstructured folders and outdated documents, which are untrustworthy and cannot be used anymore. They also provided an example where documents from two years ago were considered untrustworthy by clients and other consultants alike because they were not up to date with the latest technology.
Participant 8		According to Participant 8, knowledge sharing should be driven by the team leads, and they believe that, if there is no initiative for it, then other consultants will not be motivated to share knowledge. They also considered their own team to be doing well with knowledge sharing as they scheduled weekly sessions to discuss their work.
Participant 9		Participant 9 mentioned that the payroll team has an initiative that works well where they have a structured and updated repository for their Centre of Excellence, and they also have weekly sessions where they share knowledge and provide training with practical activities with team members. These sessions are also recorded, documented, and stored in their repository.

Participant 10		No elaboration provided.
Participant 11		According to Participant 11, there are no set structures or guidelines for knowledge sharing within the organisation, and therefore, some teams have their own initiatives, while others do not participate in knowledge sharing.
Participant 1	Other	Participant 1 said that, although the managers in the company encourage a more standardised knowledge sharing with the use of the Centres of Excellence, knowledge sharing mostly depends on the preferences of the consultants.
Participant 7		Participant 7 indicated that they do not have enough experience with other teams to know if they have different or better ways of sharing knowledge.
Participant 12		Participant 12 explained that they do not know the knowledge sharing activities of other teams.

f) The views on knowledge sharing within the organisation

The sixth question from Section 3 asked participants to describe how others within the organisation view knowledge sharing. Most participants indicated that knowledge management and knowledge sharing are not valued nor prioritised and that those who do value knowledge sharing do not have time during their projects to participate. The participants still used the terms ‘knowledge sharing’ and ‘knowledge management’ interchangeably during their responses.

The following table provides a summary of the responses from each participant.

Table 17. Knowledge Sharing Views of the Participants

Identified Views	Findings
Time constraints prevent efficient knowledge management	Participant 1 described knowledge management in the organisation as "tedious" and explained that consultants are reluctant to participate in knowledge management as they do not have the time to create documentation nor to make it accessible to others. They also could benefit from a template for knowledge management, which they could fill in when they have anything to share, which could improve the process. According to Participant 2, most consultants highly value knowledge management and would like to have a proper knowledge management process in place, but the consultants do not have time to participate in knowledge management activities. Participant 5 also indicated that consultants would appreciate "timely and accurate knowledge transfer," but they believe that solving problems on their own helps them remember solutions better than being told what to do. According to Participant 9, most consultants do not mind assisting their colleagues with projects, but they do not necessarily always have time to set aside for knowledge sharing. Participant 9, therefore, suggest that knowledge management should be compulsory and part of the organisational culture, rather than the consultants attending to it when they have the time.
Knowledge management is not valued or prioritised	Participants 6, 7, and 10 agree with each other that knowledge management is not prioritised or valued within the organisation, whereas Participant 12 explained that knowledge management is inconvenient when it needs to be done but convenient when the right information is available for use. According to Participant 11, interns and managers value knowledge management quite highly, whereas the consultants do not value knowledge management as much because they are mostly just focused on completing their projects for their clients. Participant 11 added that these consultants make up most of the organisation.
Knowledge management is highly valued	Participants 3, 4, and 8 agreed that knowledge management is valued within the organisation, explaining that consultants are eager to share knowledge and view it as "returning a favour" of when they first started and depended on knowledge sharing for their professional growth. Participant 8 also indicated that there is a knowledge sharing culture forming within the organisation.

g) Do consultants consider others more knowledgeable if they are likely to share knowledge?

Question 7, the final question from Section 3, asked participants if they would deem someone more knowledgeable if they were more likely to share knowledge. The vast majority of participants answered "Yes" and indicated that sharing knowledge shows a deeper understanding of the work, the problem, and the solution. They also said that people who share knowledge are seen as the "subject-matter experts" and would be

more frequently consulted to assist other consultants with issues on projects. Only three participants responded “No,” explaining that they believe anyone could have the knowledge but might just not be willing or eager to share it due to factors such as time constraints.

h) Other insights from the participants

During the interviews, multiple consultants provided more insights into knowledge management and knowledge sharing that did not necessarily relate to any of the questions that were asked. These insights mostly arose towards the end of the interviews when the participants were asked if they had more to share before the interview was closed. As these could aid in developing a knowledge sharing strategy for the organisation, the following table provides a summary of these insights.

Table 18. Alternative Insights from the Participants

Participants	Alternative Insights
Participant 6	According to Participant 6, various consultants use instant messaging platforms, such as Discord, to talk informally with their peers while working and assist them with questions or issues that may come up. Participant 6 indicated that these platforms could be beneficial to consultants and the projects they are on. Some might be introverts or might not be comfortable talking with their team leads in fear of being reprimanded, so they might rather try to solve a problem on their own, which could take a lot of time. If they could ask questions to their colleagues on more informal platforms that they are comfortable with, they could find solutions faster and complete their work sooner as well.
Participant 9	Participant 9 added that they have come to realise how important knowledge sharing is and that other consultants need to be made more aware of it. They explained that most often, even if there is documentation available, it is not used and forgotten even though it can assist consultants in implementing projects faster. They also mentioned that they move from one project to another at such a fast pace that they do not have time to document and share knowledge, but that training sessions on how to document may ease the process.
Participant 10	Participant 10 mentioned that their biggest issue with knowledge sharing is that they spend a lot of time on documenting their knowledge and adding it to their repository but then others tend to not be willing to share their own knowledge in return. This has forced Participant 10 to only provide access to consultants who also contribute to the repository and not to the whole organisation. They also indicated that it would be helpful to have a dedicated person that can assist with the knowledge management and knowledge sharing tasks as it can take quite some time to perform those activities.
Participant 12	According to Participant 12, since the COVID-19 pandemic, more consultants work from home, which influences the consultants' wellbeing and their ability to communicate with their colleagues. This led to less communication and fewer knowledge sharing opportunities between consultants, making them feel isolated from the organisation and from each other. They, therefore, suggested that, if the company restored its emphasis on knowledge sharing and collaboration, consultants would feel like they played a role in the success of the organisation and might be more willing to participate in knowledge sharing and knowledge management activities.

Participants 1, 2, 3, 4, and 12	Participants 1, 2, 3, 4, and 12 mentioned possible incentives for consultants to motivate them to participate in knowledge sharing activities. According to Participant 1, requiring consultants to create knowledge sharing documentation as part of a performance evaluation might motivate them to participate and contribute to knowledge sharing within the organisation. According to Participants 2 and 4, consultants do not participate in knowledge sharing as they cannot bill clients for it and they would rather focus on their projects, which are billable; therefore, if the organisation provided monetary incentives to the consultants for participating in knowledge sharing, they would be more motivated to contribute. Participant 3 did not believe incentives for contributions to knowledge sharing would be beneficial or effective but that a knowledge sharing community could be beneficial for consultants to know who could assist them in the future. Participant 12 also agreed that they do not believe that knowledge sharing can be incentivised but that it would be beneficial to have one person in charge of the repositories, someone who they could reach out to if they required information and who could assist in managing repositories.

4.5 Conclusion

Chapter 4 not only presented the data of the study but contextualised that data within the research questions and the aim of the study to serve as a reminder of what this study is trying to achieve. A detailed background on data collection was also provided, which included information on how participants were selected, recruited, and interviewed. The steps taken to protect the anonymity and confidentiality of each participant and the IT consultancy were also examined. Finally, this chapter presented the data as a logical and relatively summarised format to highlight the different opinions, insights, and tasks of the participants as they relate to knowledge management, knowledge sharing, and knowledge conversion. The data presented in Chapter 4 was analysed thematically and is discussed in Chapter 5.

5. Findings in Relation to Research Questions

5.1 Introduction

Based on the data presented in Chapter 4, Chapter 5 aims to analyse and describe the data based on various themes, which were identified during the data collection and analysis processes. This chapter, therefore, presents a summary of the themes and discusses how the themes form a part of the literature review through triangulation. To end, the analysed data from the interviews and the literature review are investigated together to answer the research questions.

5.2 Data Analysis Process and Themes

According to Teräs (2019), with thematic analysis, researchers analyse their data by identifying patterns and grouping similar themes together. Guest et al. (2012, p. 9) added that researchers use the identified themes to form "codes" (Guest et al., 2012, p. 9), which are then compared and analysed. For this study, the researcher analysed the collected data by following the six phases as presented by Braun and Clarke (2012, p. 60-69) (as discussed in Section 3.2.6 'Data analysis'):

The following steps were taken while analysing the data:

1. **Be familiar with the data:** The first step in the process of analysing the data collected from the interviews was to listen to the recordings while reading the transcripts. This allowed the researcher to make notes actively of all keywords and phrases used by the participants for each interview question. Any additional comments made by the participants, which may not have related to the questions but were still deemed relevant, were made note of too as some of these keywords were also repeated by more than one participant.
2. **Generate codes:** By noting down the keywords and key phrases, the researcher could identify similar responses from the participants for each question and codify these responses based on their frequency and similarity to each other.

3. **Identify themes:** After codifying the responses, the researcher summarised the codes and identified common themes in the responses. The following seven themes were identified:
    - **i)** Training and sessions before, during, and after projects
    - **ii)** Unique project-related issues
    - **iii)** Repositories and documentation
    - **iv)** Faster solutions
    - **v)** Time, motivation, confidence, and incentives
    - **vi)** Who knows what in the organisation?
    - **vii)** Accessibility and awareness of knowledge
4. **Review the themes:** After the seven themes were identified, the researcher reviewed the codes, themes, and interview data again to ensure that the themes were grouped correctly, could assist in answering the research questions, and aligned with the overall aim of the study.
5. **Naming themes:** After reviewing the seven themes, the researcher provided a better focus for each by combining them to form five new themes and two sub-themes. This allowed for each theme to have a more unique focus and to better answer the research questions (as discussed in the below section). The following themes and sub-themes were identified:
    - **i)** Knowledge related activities
        - Activities before, during, and after projects
    - **ii)** Knowledge sharing systems
        - Repositories and documentation
    - **iii)** Knowledge sharing barriers
    - **iv)** Knowledge sharing benefits
    - **v)** Knowledge sharing needs
6. **Report the findings:** After the data analysis was completed, the researcher wrote this report to present these findings. Summaries of the results from the interviews were presented in Chapter 4; Chapter 5 presents and discusses the thematic analysis and triangulation of the findings from the interviews and literature review, as well as answers the research questions based on the results of the research methods;

Chapter 6 will present a summary of the findings and future research recommendations.

5.2.1 Themes and research questions resolved

Throughout the 16 questions that were asked during the interview process, five main themes and two sub-themes were identified based on the keywords and phrases that were most used by the participants when answering the questions. The themes and sub-themes were also selected based on their relation to the research questions. This section discusses each theme and the research questions they resolved as laid out by the table below.

Table 19. Themes and Research Questions Resolved

Theme	Research Questions They Resolved
Theme 1: Knowledge related activities	**Main research question:** What is required for a knowledge sharing strategy for IT consultants? **Sub-question 5:** What current knowledge sharing practices are used in the chosen IT consultancy firm?
Theme 2: Knowledge sharing systems	**Main research question**
Theme 3: Knowledge sharing barriers	**Main research question** **Sub-question 3:** What factors can hinder knowledge sharing?
Theme 4: Knowledge sharing benefits	**Sub-question 2:** What are the benefits of sharing knowledge?
Theme 5: Knowledge sharing needs	**Main research question** **Sub-question 4:** What are the most important aspects of a knowledge sharing strategy?

5.2.1.1 Knowledge related activities

The first main theme that was identified is the various activities that relate to knowledge sharing mentioned by the participants. This theme emerged from the following interview questions as presented in Appendix A:

2.1 What knowledge management tasks do you conduct during or after a project?

2.2 What knowledge sharing tasks do you conduct during or after a project?

2.3 What knowledge conversion tasks do you conduct during or after a project?

3.2 Describe any current knowledge sharing practices that you are aware of within the organisation.

3.5 Do some teams have better ways of sharing knowledge than others?

Although these questions covered knowledge management, knowledge sharing, and knowledge conversion, many participants used these concepts interchangeably; therefore, any activities mentioned were grouped into one theme. A sub-theme also emerged to describe knowledge activities performed before the start of a project (for example, formal training sessions and mentorships), during the project (for example, information training sessions and documentation), and afterwards (for example, knowledge transfers and end-user training).

Some of the unique knowledge sharing activities mentioned by the participants included:

a) Documentation of unique issues as mentioned by Participant 1 in Question 2.1:

"[…where [a specific problem] has not been seen before, or no one has [had] experience with [it] before, that should and will definitely be documented."

b) Onboarding and informal training sessions as mentioned by Participant 2 in Question 2.1:

"When I was with Project A, it was very much a shared database repository, … [and the] onboarding process was very in depth."

"… and now with Project B, … there is a little bit of documentation … Most of the knowledge sharing is based [on] … speaking to someone who has been [on the project], … explaining how everything works …"

c) Boot camps as mentioned by Participant 10 in Question 2.2:

"So, I am doing a whole boot camp with the juniors that will take over the support [of the project] later on so that they are equipped with the solution, what we implemented, and how to troubleshoot some items."

d) Knowledge transfer sessions as mentioned by Participant 11 in Question 2.2:

"… internally, we'll have the knowledge transfer session … that has a supporting document, … normally a set of slides, which are presented during the session and shared as well."

e) Monthly training sessions as mentioned by Participant 3 in Question 2.3:

"I think the most similar one that comes to mind is our Company A Fridays, where we would all get together and have a knowledge sharing session where you go through what you've been doing that week …"

f) Cheat sheets and informal training sessions as mentioned by Participant 4 in Question 2.3:

"… if you have mastered a process, you would normally do … a cheat sheet where you just draw out the whole process … You can share it with others, … so it [involves] a bit of training to other consultants …"

g) Mentorships as mentioned by Participant 1 in Question 3.2:

"… we … have the mentorship initiative, where a senior would be assigned to a few of his peers … to be able to address any questions, concerns, [or] problems … where further knowledge can be shared within those smaller teams."

h) Weekly check-ins as mentioned by Participant 8 in Question 3.5:

"I would like to think that our current team is doing an excellent job by at least having weekly check-ins …"

Overall, all participants indicated that they perform some knowledge management or knowledge sharing activities, although it is mostly for their own individual benefit and not a consistent task performed across all teams. Management also encourages knowledge sharing but does not regulate how the consultants should share or manage their knowledge, and so, the activities performed are up to the consultants' preferences. These activities are performed either to prepare for new projects, solve problems on current projects, or at the end of the project to document lessons learned and what they can change for future projects.

The responses from these questions also assisted in answering the main research question:

> *What would be required in a knowledge sharing strategy for an IT consultancy?*

as these answers delved further into the current knowledge sharing activities performed by the consultants. These also answered which activities they prefer, which the consultants do not believe are effective, and which activities the consultants would be more willing to participate in. This identified the knowledge sharing activities that should not be included in a knowledge sharing strategy. The responses also assisted in answering Sub-question 5:

> *What current knowledge sharing practices are used in the chosen IT consultancy firm?*

because the participants mentioned numerous knowledge sharing and other knowledge related activities in their answers, which form a part of the larger knowledge sharing scope within the IT consultancy.

5.2.1.2 Knowledge sharing systems

The second theme incorporates all the knowledge sharing systems that were mentioned and used by the participants. In this study, 'knowledge sharing systems' follows the definition by Al-Busaidi and Olfman (2017, p. 122) to describe an inter-organisational knowledge sharing system: These systems enable the storage and distribution of explicit knowledge with the use of technological tools, which could store and distribute either individual or organisational knowledge. Therefore, this theme incorporates any tools or programmes that assist the consultants in documenting and sharing their knowledge with each other.

This theme was prompted by the following interview questions as presented in Appendix A:

2.1 What knowledge management tasks do you conduct during or after a project?

2.2 What knowledge sharing tasks do you conduct during or after a project?

2.3 What knowledge conversion tasks do you conduct during or after a project?

2.8 What knowledge sharing strategies could you suggest?

3.2 Describe any current knowledge sharing practices that you are aware of within the organisation.

3.3 Describe any difficulties you have experienced within the organisation regarding knowledge sharing.

3.4 Describe any difficulties you have experienced within the organisation regarding knowledge management.

A sub-theme was also developed to describe whether these systems are used for documentation (for example, OneNote) or if it forms part of a repository (for example, Microsoft Teams and the Centres of Excellence). The following list summarises the unique knowledge management systems that are currently used by the consultants:

a) Email archives and Microsoft Teams were mentioned by Participant 6 in Question 2.1:

"… I archive my emails very well. So, I try to make sure that those lessons learned are always captured in emails. It will be dual captured, one in Microsoft Teams and one in an email."

b) Centres of Excellences (which are used to describe both groups of specialised consultants and the online repositories they use) were mentioned by quite a few of the participants. For example, Participant 7 in Question 2.2 and Participant 3 in Question 2.3 mentioned the following:

"[Formal training sessions] will be recorded, and then they are shared via the various Centres of Excellence channels that we have available." (Participant 3).

"We … have the Centres of Excellence on [Microsoft] Teams, where it … takes channels where you can go. [You can] put down any issue you encountered and the solution, or you can ask for help. But moving or navigating a text chat just to find information is quite difficult …" (Participant 7).

c) OneNote was mentioned by Participant 10 in Question 2.8:

"One thing I do with basically all the interns … is I put up a OneNote with them, and I share some knowledge-based articles …"

d) A Community of Practice email was mentioned by Participant 12 in Question 3.3:

"… we have a group email address, a CoP email address where we can direct certain questions."

e) Wikis were mentioned by Participant 2 in Question 3.4 because they were creating a wiki to enhance knowledge sharing:

"… I wanted to start this initiative of getting a full-on wiki organised for us … but I don't know everything, and I can [only add] the few things that I know."

Although the interview questions did not directly request participants to indicate the tools or technologies that they used to document and share knowledge, most participants indirectly disclosed their preferences. For example, some participants preferred wikis, OneNote, emails, online chat tools, Microsoft SharePoint repositories, or Microsoft Word documents. The channels of sharing knowledge are also up to the consultants' preferences and are not prescribed at a management level. Therefore, this theme assisted in answering the main research question as it provided an overview of the various tools and systems that the consultants preferred to use when managing or sharing knowledge, as well as the systems they do not prefer or that they believe are inefficient. These will assist in informing the knowledge sharing strategy that will suit their needs.

5.2.1.3 Knowledge sharing barriers

The third theme encompasses any knowledge sharing issues or hindrances experienced by the participants, as well as any factors that can prevent consultants from finding knowledge or sharing knowledge with their colleagues. This theme was prompted by the following interview questions as presented in Appendix A:

2.1 What knowledge management tasks do you conduct during or after a project?

2.8 What knowledge sharing strategies could you suggest?

3.3 Describe any difficulties you have experienced within the organisation regarding knowledge sharing.

3.4 Describe any difficulties you have experienced within the organisation regarding knowledge management.

3.5 Do some teams have better ways of sharing knowledge than others?

3.6 How would you describe other people's view of knowledge sharing within the organisation?

Although these questions covered knowledge management and knowledge sharing, various participants used these concepts interchangeably, so any hindrances or issues related to knowledge sharing and knowledge management were grouped into one theme. Some of the knowledge sharing hindrances that were indicated by the participants are summarised in the following list:

a) Participant 6 mentioned outdated repositories and documents in Question 2.1 and 3.5 respectively, and competitiveness in Question 3.3:

"… the problem with wikis back in the day was that [they] … became so outdated so quickly …"

"It's this idea of a dead document … The payroll team had captured documents in 2021. They are absolutely out of date and dead … not updated and becoming untrustworthy …"

"Something I alluded to in the beginning is competitiveness: 'I don't want to share my knowledge because I feel it gives me an advantage'."

b) Participant 1 pointed to a lack of documentation in Question 2.8:

"Purely from knowledge sharing, what hasn't worked is when it's not being documented … if they had to explain the same thing over and over again to different people …"

c) Participant 5 stated in Question 3.4 that time and a lack of documentation hinder them from sharing and finding knowledge:

"Definitely a lack of documentation. And then also it would be time, as a lot of seniors and project leads, they won't have enough time to sit with you and go through the work with you …"

d) In Question 3.6, reluctance, value, and priority were mentioned as knowledge sharing hindrances by the several participants:

"… It comes down to a bit of reluctance, unfortunately" (Participant 1).

"Honestly, I don't think people put enough value to it …" (Participant 6).

"I would say it's not prioritised at all … more of an item on the back burner." (Participant 7).

"I think most people don't really care that much about it." (Participant 10).

"The younger guys … I would say high value. The guys who need to lead the projects … I would say high value. The guys in between who are really just focused on getting their client hours, getting their client work in, they don't 100% see the value in it, and that's 80% of the company, unfortunately." (Participant 12).

All the participants alluded to some form of hindrance that they have experienced regarding knowledge sharing, whether it was:

- consultants preferring to find knowledge on their own,
- competition among consultants,
- reluctance to contribute,
- not knowing where to find knowledge,
- little to no motivation to take part, or
- no value being assigned to knowledge sharing.

A number of participants indicated a shortage of time as a hindrance. 'Time' has, thus, been identified as an important aspect to keep in mind when developing the knowledge sharing strategy as a consultant might not find the strategy effective if it is still too time consuming.

This theme assisted in answering the main research question because knowing the issues consultants face assists in knowing what they would prefer in a knowledge sharing strategy, what should be avoided, and what can be improved. Sub-question 3:

What factors can hinder knowledge sharing?

was also resolved by this theme as participants' answers explained the factors preventing consultants from sharing and managing their knowledge effectively. These answers also identified factors to avoid when developing the knowledge sharing strategy.

5.2.1.4 Knowledge sharing benefits

The fourth theme includes the benefits of knowledge sharing that were mentioned by the participants. This theme was created by the responses from the following interview questions as presented in Appendix A:

2.6 Would you value a person's knowledge over other popular information sources?

2.7 How has knowledge sharing helped you with projects?

3.1 How could knowledge sharing be beneficial on projects?

The following list includes examples of the unique benefits of knowledge sharing that were indicated by the participants:

a) In Question 2.6, Participant 1 explained 'context' as a benefit of sharing knowledge in person instead of through books or documents:

"But to have someone that is already on the same project as you and been there longer than you, I would value the knowledge of the person, mostly because it's within the context of what you are trying to achieve."

b) In Question 2.7, Participant 6 said that confidence and faster task completion are benefits of knowledge sharing:

"I'll be able to finish my tasks faster because of it. And again, [I] have more confidence [when] I know I have been trained."

c) Participant 7 also mentioned in Question 2.7 that it saves time on projects when they can ask someone to help them or share knowledge with them:

"And getting information from colleagues and team members and resources that I can ask directly has probably saved me hours, if not days' worth, of debugging and searching for possible issues."

d) Participant 10 specified delegation and lessening of workload as benefits of knowledge sharing in Question 2.7:

"So, in terms of receiving knowledge, of course, it makes my workload a little bit less … In terms of sharing knowledge, it has [also] lessened my workload because there are other people that are now trained to handle the same issues [to whom] … I can delegate."

e) In Question 3.1, most participants revealed faster solutions and delivery times as benefits of knowledge sharing. For example:

"I think it helps to accelerate the solution and reduce redundancies …" (Participant 1).

"I think it can reduce lead times on projects, as well as actual work being done on projects …" (Participant 3).

"If you can reduce upskilling time, you're going to have faster delivery." (Participant 6).

"I think it can fast track certain processes within the lifecycle of a project by reviewing the lessons learned from a previous project." (Participant 8).

As described in Section 4.4.1.2.d) 'The value of knowledge sharing and knowledge conversion', most of the participants saw the value of knowledge sharing and believed that it

could benefit them if there were no hindrances, such as time constraints, competition, or a lack of involvement and motivation. This theme assisted in answering Sub-question 2:

What are the benefits of sharing knowledge?

From the interview questions, the participants were prompted to explain how knowledge sharing has benefitted them in the past and how they believe it might benefit them in the future. Most participants agreed that knowledge sharing can ease problem solving on projects, enhance delegation, and expedite upskilling, all of which could enable the organisation to deliver faster solutions and take on more projects. The responses from this theme could assist in developing a knowledge sharing strategy that would suit the consultants, which they will find beneficial.

5.2.1.5 Knowledge needs

This theme includes the knowledge needs of the participants. As some participants used the terms knowledge sharing and knowledge management interchangeably, this theme includes any needs related to knowledge that the participants mentioned. Although there was no interview question that directly asked the participants what they require or what their needs are for knowledge sharing or knowledge management, the following questions as presented in Appendix A prompted the participants to share their knowledge needs:

2.8 What knowledge sharing strategies could you suggest?

3.3 Describe any difficulties you have experienced within the organisation regarding knowledge sharing.

3.4 Describe any difficulties you have experienced within the organisation regarding knowledge management.

3.6 How would you describe other people's view of knowledge sharing within the organisation?

The following list includes examples of unique needs that were indicated by the participants:

a) According to Participant 2 in Question 2.8, more contributions are needed from the consultants to establish an extensive wiki or similar repository:

"The thing is it needs to be quite extensive. There needs to be quite a few contributions. So, that wiki is very useful. However, it needs to have all the information or a lot of the information to actually work."

b) Participant 3 mentioned in Question 2.8 that a standard format and naming convention for documentation would also be useful:

"So, I would definitely say that when knowledge is shared, we should have a standard format that it should be shared [in] … I would have a better naming convention as well."

c) Participants 10 and 12 provided a need for maintenance and a dedicated person to handle knowledge management in Question 3.3:

"… We can get someone that handles the admin. We don't have enough time to do the admin around it and implement the project." (Participant 10).

"… having [a repository] maintained is very difficult just due to the practical nature of it … If there's someone who can walk side by side and help facilitate that … sort through documentation and store it in the right places …" (Participant 12).

d) In Question 3.4, Participant 11 also identified a need for better maintenance and a dedicated person to handle knowledge management:

"Maybe having a person that's more dedicated to dealing with [knowledge management], making sure that all these procedures are in place, [then] everything's stored properly."

e) In Question 3.6, Participant 1 indicated a need for a template they can use for knowledge sharing:

"If I were to share knowledge now, I would like it to be as easy as possible, so I would prefer to have a template set up for me so that I don't need to go look for one [or] make one from scratch or so on."

f) In Question 3.6, Participant 9 mentioned a need for knowledge sharing to be compulsory:

"It's something that should be priority, should be emphasised, and shouldn't be optional … It should be something that's embedded in the culture."

Overall, this theme resolved the main research question because the responses from the participants described the shortfalls of their current knowledge sharing and knowledge management practices, as well as describing ways they believe they could be improved. This will aid to develop a strategy that will meet the needs of the consultants. This theme also answered Sub-question 4:

What are the most important aspects of a knowledge sharing strategy?

as the theme identifies the needs of the participants and what the strategy could contain to assist the consultants with their knowledge sharing and knowledge management tasks. This includes more participation from consultants, more time to contribute to knowledge sharing, and easier access to knowledge (knowledge about where to find knowledge, knowing who knows what in the organisation, and being able to store and search for knowledge in a central place).

5.3 Research Questions Answered

The research questions for this study were first presented in Section 1.3 to set the scene for what the study aimed to achieve. The main research question investigated what a knowledge sharing strategy for IT consultants would entail, while the sub-questions provided support for answering the main question and developing the knowledge sharing strategy. This section discusses the answers to each research question and sub-question.

5.3.1 Sub-question 1: How can knowledge sharing be defined?

This specific sub-question provides a background for how knowledge sharing is defined in this study. The definition was provided in Section 1.5.4, which explained that knowledge sharing is an exchange of knowledge between two or more people that aims to improve an organisation's operation. This knowledge could be either internal or external from an

organisation, and individuals, and involves both tacit and explicit knowledge exchanges to create renewed knowledge.

5.3.2 Sub-question 2: What are the benefits of sharing knowledge?

This sub-question was answered through Sections 2.4.3.2 'The importance of knowledge sharing', 2.4.4 'Knowledge sharing in IT consultancies', and 4.4.1 'Findings from the interview process'.

In Section 2.4.4, several factors were identified from the literature that could hold both positive and negative influences on knowledge sharing. Most of these factors were also reiterated by the participants during the data collection with participants reflecting on positive factors, such as reciprocating knowledge sharing, sharing knowledge with colleagues whom they trust, and sharing common goals with their colleagues, all of which could provide more context for better knowledge sharing. The majority of the participants also highlighted that knowledge sharing can enable them to work more effectively and efficiently by solving problems faster and avoiding the reoccurrence of problems, and that they prefer to share knowledge face-to-face rather than searching online. This was identified as a main priority for the participants when it came to the benefits of knowledge sharing in their everyday work.

Overall, the main benefit of knowledge sharing was found to be faster problem solving, which leads to better service delivery. Other benefits that were identified included being onboarded to new projects faster, being able to delegate work, and being more proficient in their work, which could also result in more trust from their team leads to know that they will complete their work without requiring too much assistance.

5.3.3 Sub-question 3: What factors can hinder knowledge sharing?

On the other hand, participants also aligned with most of the negative factors that can hinder successful knowledge sharing, such as personality traits, which can include being too competitive to share knowledge or not having motivation to assist in knowledge sharing activities. There is not always enough documentation when participants need knowledge, or they do not know where to find the knowledge they need; and because participants worked remotely, they may not feel comfortable enough to ask their colleagues for assistance, or their team leads may be discouraging them from requesting assistance.

One of the major barriers to knowledge sharing that was identified in the literature, which most of the participants also agreed with, was time constraints. Frequently throughout the interviews, that they do not have time before, during, or after their projects to partake in knowledge sharing was mentioned by the participants because they move from one project to another quite quickly. The consultants also did not have billable hours for knowledge sharing activities, and therefore, this is not a priority for them as there are no incentives or recognition for them to share their knowledge. This was therefore identified as the main barrier that hinders the consultants from sharing their knowledge.

Sub-question 3 was, therefore, also answered throughout Sections 2.4.3.2, 2.2.4, and 4.4.1, as Sub-question 2 was. Some of the more minor hindrances like finding knowledge, knowing how to document knowledge, and reciprocating knowledge sharing would be resolved if consultants had more time and billable hours to spend on these tasks.

5.3.4 Sub-question 4: What are the most important aspects of a knowledge sharing strategy?

Through reviewing Section 2.2.4 'Defining knowledge' and point g) of Section 4.4.1.2 'Participants' experience with knowledge sharing, knowledge management and knowledge conversion at the IT consultancy', some important aspects of a knowledge sharing strategy came to light.

The literature mentioned that certain technologies (for example, repositories and portals) are crucial factors in knowledge sharing, and therefore, these technologies need to be promoted, and awareness of knowledge sharing should be raised among employees. Other important aspects of knowledge sharing found in the literature include better communication, having a knowledge manager discuss documents with the consultants to discard outdated and unused information, and to allocate specific time for consultants to perform their required knowledge sharing activities.

During data collection (specifically 4.4.1.2.g, where participants were asked to suggest knowledge sharing strategies), some important aspects included using tools like shared wikis to store documents to make them more searchable for consultants, training consultants on

the tools that are available and how to use them, as well as documenting lessons learned from projects and storing them so that others can use them on future projects.

One participant mentioned that, because consultants struggle to find time to conduct knowledge sharing, the strategy could include a short template for consultants to fill in after a project, and if their knowledge is deemed relevant and reusable, they can receive billable hours to write more substantial documentation on the knowledge they have gained through their project. Another participant also indicated that all consultants should be required to write lessons learned documentation at the end of projects, and that this should be shared and presented to other consultants and reused on other projects. Furthermore, Participants 10 and 12 mentioned in point d) of Section 4.4.1.3 'The organisation's perceived knowledge sharing practices' that a knowledge manager (or a singular person responsible for managing the knowledge of the department) would be valuable, whereas Participant 6 mentioned in point e) of that same section that some repositories within the organisation contain outdated documents, which are untrustworthy. Both of these statements also align with the aspects mentioned in the literature.

5.3.5 Sub-question 5: What current knowledge sharing practices are used in the IT consultancy?

Sub-question 5 was answered throughout various interview questions. Practices that are currently used in the IT consultancy include sharing documentation from previous projects with colleagues, having formal and informal training sessions where knowledge is shared, documenting lessons learned throughout the project, and having knowledge transfer sessions with clients and other consultants, mentorships, using the text functionality of Microsoft Teams to ask colleagues for assistance, and assisting in the Centres of Excellence initiative where a repository is created per team and they can share documents and project-specific information.

Although each consultant had their own knowledge sharing tasks that they conduct based on their own preference, the Centres of Excellence is the only activity that is enforced from a managerial level. Many participants revealed their involvement in the individual knowledge sharing activities of the Centres they form part of. Within the literature, knowledge sharing

tools and techniques were identified, which can also form part of the knowledge sharing practices that the consultants partake in.

Section 2.4.4 ‘Knowledge sharing in IT consultancies’ identified some of the common tools and technologies in the literature that are used by IT consultants. From the interviews, most of these tools and technologies are also used by the consultants at Company A, such as Microsoft Teams, SharePoint, and OneNote. These tools are used by the consultants for sharing and uploading documents to a repository, but the chat functionality of these tools is also used frequently by the consultants to communicate with each other if they are experiencing any difficulties on projects. Although this is not always an effective way to archive, document, or find knowledge (as indicated by Participant 1), another participant also mentioned that numerous technical consultants use Discord to communicate with each other. This is a straightforward way for them to reach out to their peers as they feel more comfortable discussing project-related issues with colleagues that they trust and can confide in. This was identified as an important aspect to consider for a knowledge sharing strategy, especially for the junior consultants who may feel more comfortable to ask their peers a question rather than their team leads.

5.3.6 Main Question: What is required for a knowledge sharing strategy for IT consultants?

Throughout Sections 2.4.4 ‘Knowledge sharing in IT consultancies’ and 4.4.1 ‘Findings from the interview process’, various aspects of knowledge sharing within IT consultancies were identified, including benefits, barriers, needs, and solutions. These aspects provided a better understanding of current trends in the industry, what the consultants at Company A may require, as well as aspects that could hinder them from sharing knowledge and knowledge activities that they may not find useful or effective. From the interviews, that the consultants at Company A would require an easily searchable knowledge base, better training and documentation before, during, and after projects, templates for how to create documentation, and also a person that can assist in managing and retrieving the knowledge from the knowledge base and documentation were identified. Incentives were also identified as a factor that could motivate consultants to share their knowledge.

Section 2.4.4 mentioned that better communication, awareness, and training around knowledge sharing and knowledge sharing technologies could enable consultants to work more effectively. Consultants' knowledge sharing activities should also be aligned with the organisation's mission and vision to ensure that the end goals can be reached effectively. It is also mentioned in the literature that knowledge managers can be a crucial addition to a team because consultants do not always have time to conduct all the knowledge management and knowledge sharing tasks themselves. Finally, one specific study in Section 2.4.4 emphasised the need for a searchable database for consultants, which they can use to find knowledge faster to know when new knowledge is available and identify who within the organisation has the knowledge that they need.

The participants that were interviewed during the data collection also expressed these needs. Some participants mentioned that a singular person in charge of knowledge management and sharing activities would be beneficial, while other participants indicated that a searchable database with keywords might assist in finding knowledge faster, as well as seeing who has the knowledge they require for their tasks (for example, a wiki). Other needs indicated by the participants included more frequent check-ins, training sessions that are better structured, incentives for spending time on knowledge related activities (for example, billable hours), making knowledge sharing and documentation of knowledge compulsory, and last of all, having a template or guideline for documenting knowledge. These needs and solutions suggested by the participants and retrieved from the literature were used to develop a more in-depth knowledge sharing strategy that will be discussed in Section 6.2.

5.4 Triangulation

According to Jonsen and Jehn (2015, p. 125), there are three main reasons for using triangulation in qualitative research: first, to reduce the chance of researcher bias; second, to ensure the purpose of the study is clear; and third, to support the results of the study. In this study, the research from the literature and the data collection were combined to substantiate the research questions throughout Section 5.3. By analysing both the literature and the data, some overlaps became clear between the answers from the participants and the existing research on IT consultancies.

Through the literature, it was established that IT consultancies (as well as other IT companies tasked with developing software for clients) require knowledge to acquire competitive advantage and produce better and faster services for their clients (Kukko & Helander, 2012; Dingsøyr, 2002; Kukko, 2013b). Furthermore, the focus of knowledge sharing within this industry is not only on utilising existing knowledge but also to create new and better knowledge within an ever-changing landscape (Kukko, 2013a, p. 2). The empirical study provided numerous benefits and hindrances to knowledge sharing, and therefore, there is a need for knowledge sharing and knowledge creation within IT consultancies.

5.5 Conclusion

The overall aim of Chapter 5 was to answer the research questions by comparing the literature from Chapter 2 and the data collected from the participants in the case study. Before the questions could be answered, this chapter opened with the process that was followed for analysing the data collected from the interviews, and then, the themes that were identified throughout the data analysis process were discussed. The themes included knowledge related activities, knowledge sharing systems, knowledge sharing barriers, knowledge sharing benefits, and knowledge sharing needs. Additionally, this chapter discussed the identified themes in terms of the research questions they helped to resolve. This chapter also drew a comparison between the literature and the results from the data collection with the aim of answering the research questions. Finally, a summary of triangulation was provided to substantiate the link between the literature and the empirical study. Overall, all the research questions were answered through the study, either by the literature, the case study, or both.

6. Findings, Recommendations for Future Research, and Conclusion

6.1 Introduction

In this chapter, the final findings for the study are presented, and the knowledge sharing strategy that was developed for a South African IT consultancy is outlined. This chapter includes the limitations that the researcher experienced during this study and the value that it brought to the fields of Information Science, Knowledge Management, and to a specific IT consultancy in South Africa. In conclusion, this chapter offers recommendations for future research within these fields to expand on what this case study achieved.

6.2 Summary of Findings

Throughout the literature and the case study of the IT consultancy, various aspects of knowledge sharing came to light, including benefits, barriers and solutions, motivational factors, activities, and tools and technologies. From these aspects, some of the key points were combined to form the knowledge sharing strategy for the specific IT consultancy. The sections below summarise the findings from the literature and case study to present the knowledge sharing strategy that was developed from these findings.

6.2.1 Summary of findings from the literature

The findings from the literature in Chapter 2 provided a view of what research has been done in the fields of knowledge, knowledge management, and knowledge sharing. This research set the scene for the study and helped to answer the research questions to develop a knowledge sharing strategy. The following sections summarise the main findings from Chapter 2.

6.2.1.1 Summary of research on knowledge

Chapter 2 described the foundation of knowledge as a starting point for the research study. This chapter investigated how knowledge is defined, where it originated, and the role it plays in knowledge sharing. It delved deeper into the several types of knowledge (tacit and explicit

knowledge) to explain how new knowledge can be created by exchanging tacit and explicit knowledge in one of four ways: socialisation, externalisation, combination, or internalisation. Therefore, knowledge sharing is an important activity for organisations as it assists employees in creating new knowledge and acquiring new skills and experiences. Last of all, this chapter also described the different processes and activities of knowledge while focusing on knowledge sharing and the consequences for organisations if knowledge is not shared amongst employees.

6.2.1.2 Summary of research on knowledge management

The researcher investigated the concept of knowledge further in Section 2.3, to recognise how it can be managed. Throughout this section, the focus remained on knowledge sharing and how this can be done through knowledge management. First, the researcher examined knowledge management models in Section 2.3.2 to understand how these models can identify knowledge needs and encourage knowledge sharing within organisations. Next, in Section 2.3.3, the researcher described the different tools and technologies that could be used to locate and share new knowledge throughout organisations.

These two sections provided the researcher with more perceptive on how knowledge management can encourage knowledge sharing to correlate these two fields in Section 2.3.4.

6.2.1.3 Summary of research on knowledge sharing

In the literature review of knowledge management, Section 2.4.3 provides an overview of knowledge sharing by discussing the factors that hinder knowledge sharing and its importance for organisations. The former depends on competition between employees, training on tools for knowledge management, not having enough time to share knowledge and no new knowledge creation, which could lead to a lack of knowledge sharing and skills development. The latter found that organisations have a greater competitive advantage and greater motivation amongst employees with knowledge sharing. The barriers analysed in this section aligns with the results of the data collection, where participants reiterated that colleagues are reluctant to share knowledge if they believe their knowledge gives them a competitive edge. They also mentioned a lack of knowledge sharing culture in the organisation, as well as not

having time to document or share their knowledge even though they are aware of the benefits.

The last section of Chapter 2 (Section 2.4.4) summarised myriad studies of current knowledge sharing practices in IT consultancies and highlighted various hindrances, benefits, and other factors that can influence the effectiveness of knowledge sharing amongst IT professionals. Most of these factors also aligned to the feedback from the participants during the data collection. For example, the participants identified the following barriers that they face regarding knowledge sharing, which can also be found in the literature: delays in product delivery if they are unsure of the solution to a problem, lack of communication between teams and team members, consultants are not motivated or incentivised to share their knowledge (especially not from leadership), some participants feel that they are discouraged from sharing their knowledge as their colleagues will only learn if they find the solution themselves, and that it takes too long to complete documentation and can rather spend this time of product delivery. From a knowledge sharing strategy point of view, some factors mentioned in the literature were also incorporated in the knowledge sharing strategy in Section 6.3, for example: consultants should be guided and encouraged by their managers to share knowledge and to embrace teamwork and better communication, clear processes should be in place for consultants to document and share knowledge, ensuring that documents are up to date and that specific people are assigned to and responsible for the governance of these processes and documentation. That being said, the technology implemented for the consultants should also be suitable and effortless enough that they do not spend too much time on completing documentation or retrieving the relevant knowledge from the repositories.

6.2.2 Summary of findings from the data collection

In Chapters 4 and 5, the researcher presented and analysed the data collected from the interviews with IT consultants. This analysis provided a few key factors for knowledge sharing hindrances and benefits as perceived by the consultants themselves. In this analysis, it was found that consultants perform most of their knowledge sharing activities after projects, by providing training to clients, and knowledge transfer sessions to other consultants.

During these interviews, it became clear that consultants preferred to share knowledge by directly interacting with their colleagues as opposed to using internet sources, videos, or making use of the Communities of Practice emails. There were also numerous benefits and hindrances that were highlighted by the consultants. Some benefits included a faster implementation time for projects, less time spent on finding solutions to problems that tend to repeat from project to project, more confidence for lower-level consultants to work on their own, and less time is spent searching for the right consultant to assist with problems and awaiting a response.

On the other hand, some hindrances included that lower-level and higher-level consultants are trained together, which does not provide the same value to both sides; that consultants do not have billable hours for knowledge sharing and training; and that they are, therefore, not motivated to join in knowledge sharing activities. This goes hand-in-hand with consultants' lack of time to share knowledge on and between projects. They also do not see it as a priority as there are no incentives for them to invest time in it. Some consultants want knowledge to be shared with them but are unwilling to reciprocate knowledge sharing, which may be due to time constraints or competitiveness.

These benefits and hindrances mentioned by the consultants were deemed as a key factor in developing the knowledge sharing strategy, which is discussed in the next section.

6.3 Knowledge Sharing Strategy

The findings from both the literature and the data collection process were combined to develop a knowledge sharing strategy for the IT consultancy, which will suit the needs and preferences of its consultants.

The literature review found that centralised and searchable knowledge bases are valuable knowledge sharing assets for IT consultants, along with allocated time and billable hours for the consultants to join in knowledge sharing activities. In the interviews, consultants highlighted their preferences for interacting with their colleagues when sharing knowledge, as well as having sufficient time, incentives, and proper motivation to partake in knowledge sharing activities and to prepare for training. Some consultants also suggested that

knowledge managers could be helpful in locating, storing the documents of, and disseminating knowledge on their behalf.

Taking these factors into consideration, a knowledge sharing strategy was developed for the chosen IT consultancy. This strategy is based on the knowledge management framework as discussed in Section 2.4.5 by cross-referencing people, processes, technology, and governance with discussion, documentation, synthesisation, and finding and reviewing knowledge, as suggested by Milton and Lambe (2019, p. 149). The strategy is outlined below.

6.3.1 People

The people who will need to be involved in knowledge sharing for the organisation include interns, associate consultants, consultants, and senior consultants. Although management would play a guiding role in encouraging and facilitating knowledge sharing, it is mostly the consultants working directly with the clients that require knowledge, especially less experienced consultants. Team leads in the organisation tend to have more contact with other consultants than the managers and will, therefore, play a larger role in holding others accountable for knowledge sharing.

The following details the responsibilities of the consultants regarding knowledge sharing.

a) **Discussion:** Within each project, team leads will be responsible for ensuring that the consultants who form part of their team contribute to knowledge sharing with the rest of the team by having discussions and informal training sessions. This can be facilitated by a team lead. Consultants on the project will be responsible for participating in these discussions and to follow the guidance of team leads. Managers are responsible for setting up formal training sessions.
b) **Documentation:** Both the team leads and consultants would need to complete documentation during the project lifecycle, whether this includes blueprints, workshops, knowledge transfers, or lessons learned. Part of this documentation can also include documenting problems resolved or lessons learned from knowledge sharing discussion sessions. It will be the responsibility of all consultants to participate in these tasks but will be guided by the team lead, especially if the documentation forms part of the project lifecycle. Where managers feel the need to have handover

sessions between consultants and an exiting employee, the manager will facilitate this.

c) **Synthesisation:** Although appointing a knowledge manager to manage the documentation within the organisation might not be realistic, it might be possible to allow the project managers additional, billable time on projects to ensure that project documentation is stored and disseminated. Additional documentation from knowledge sharing discussions could be stored and managed by team leads. The organisation already has a team outside of this specific department that is responsible for setting up documentation templates for the whole organisation. If all consultants make use of these templates, documentation would also be more consistent, and it would be easier to know how knowledge should be documented. Storage of formal training material is the responsibility of the managers who established the sessions.

d) **Finding and reviewing:** Project managers will be responsible for guiding consultants to the correct templates to use and to documentation of past projects. Team leads will be responsible for guiding consultants to documentation or sources where they can find documentation for problem solving. Consultants themselves will be responsible for finding, reading, and reusing the knowledge they have gained from the sources they have consulted.

6.3.2 Process

Different processes are required for sharing, documenting, storing, managing, finding, and reusing knowledge. Following these processes will ensure effective knowledge transfer and will assist in keeping the flow of knowledge between teams consistent and accurate. The following points outline these different processes, which should be followed to ensure that consultants have specific guidelines to follow and can fulfil their roles and responsibilities.

a) **Discussion:** As some consultants prefer online meetings and other prefer face-to-face meetings (specifically in knowledge sharing), team leads can follow the preference of their team for facilitating knowledge sharing discussions. Team leads can arrange sessions with their team and allow team members to ask questions based on their current project or for other consultants to assist. Another option is to allow for information training sessions where members share and document what they have

learned throughout their week and allow for questions from the rest of the team. Formal training sessions can be facilitated by managers, who can also talk to other consultants to discover what they would like to be trained on in these sessions. The sessions can also be for both technical and functional consultants in order for them to have a better idea of what their colleagues' roles are on a project and how they fit into these roles as well.

b) **Documentation:** As time constraints are a major hindrance for knowledge sharing between consultants, especially if there are no motivational factors, incentivise knowledge sharing with the following process: Apart from project documentation that is usually billable and compulsory, consultants can briefly document knowledge, lessons learned, and solutions to problems experienced on projects at the end of the project lifecycle. Other consultants can then vote on how useful they find the documentation; each vote can count as a point to the consultant, and if the documentation is deemed highly valuable, the consultant can receive additional billable hours to elaborate on their documentation. This can include documentation used in the team-specific knowledge sharing sessions and discussions. For project documentation, the consultants will make use of the existing templates and past documentation to ensure they align to the standard for documenting their knowledge. Additions can be made to these templates to include explanations to the consultants of how to add information.

c) **Synthesisation:** During the project lifecycle, project managers need to ensure that the project documentation is created, updated, and stored on a database that all consultants in the department have access to. These tasks need to be performed continuously, and consultants should work online to ensure that version control of all documents is accurate. Project managers should also be informed of any changes to documentation; this can be done through a centralised application such as Microsoft Teams as to not overflow the project managers' inboxes. Team leads can also update their team's documentation on the database within a specified folder structure and allow the whole department to access the documentation and resources.

d) **Finding and reviewing:** For finding and reusing resources, project managers can have discussions before projects where they let the consultants know what their high-level requirements would be (for example, what documentation they would be required to

create) and where they can find templates and past documentation to use as examples. Team leads can also have a session with their team before the start of a project to ensure they understand the implementation requirements. During this session, the team can go through the implementation documentation, cheat sheets, or past documentation to ensure they understand what is expected of them, so that they know where to find knowledge if they need to solve any problems during the project.

6.3.3 Technology

For knowledge sharing to be successful within the company, consultants need to make use of different technologies to assist with sharing, storing, finding, and using knowledge. Because most of the consultants work from home, the company already has applications like Microsoft Teams and SharePoint in place. Younger consultants prefer to use Discord to talk to their peers and informally share knowledge.

The following further discusses the use of technologies for each of these elements.

a) **Discussion:** Technologies for facilitating knowledge sharing and discussions already exist, and consultants can continue using Microsoft Teams to hold online meetings, share documentation and links with each other, and upload documents to Microsoft SharePoint. A more structured database where documents are stored in a more logical way can also be created to allow consultants to find who has the knowledge they are seeking and who they can contact to assist in solving complex project problems.
b) **Documentation:** Currently, consultants and project managers use Microsoft Word, Microsoft Excel, and Microsoft PowerPoint for formal documentation, such as project documentation and formal training documentation. Other consultants also make use of Microsoft OneNote to collaborate with their teams on collecting knowledge sources and solutions to common issues. These technologies can remain in use for informal documentation from knowledge sharing sessions, and to allow access to all other teams in the department as well, these could be uploaded onto Microsoft SharePoint. Training sessions can also be recorded via Microsoft Teams and uploaded for later use.
c) **Synthesisation:** A knowledge base can be created with tags, keywords, and appropriate metadata to enable consultants to search for knowledge-based articles

and project documentation easily to know what the articles entail to determine if the articles will be relevant to them. Metadata can also assist in identifying the authors of the documents and who can be consulted for further questions. This knowledge base can be centralised to ensure all consultants from all teams have access to the documentation as opposed to the current situation where each team has their own knowledge base and only certain team members have access. Having project documentation, such as proposals, blueprints, knowledge transfers, and workbooks from previous projects stored, on the knowledge base will enable consultants to reference and adapt such documentation easily to their current projects. The knowledge base could have a 'text' or 'chat' functionality as well, where consultants could talk to their colleagues and share knowledge to maintain the social aspect of knowledge sharing, which they value.

d) **Finding and reviewing:** As mentioned above, tags, keywords, and metadata can easily enable consultants to find knowledge and people who could assist them in solving problems on projects by allowing them to see who created the documents and what the main topics of the documents are. Consultants and project managers could also create consistent taxonomies to ensure that consultants know how to navigate and use the knowledge base to find knowledge.

6.3.4 Governance

One hindrance to knowledge sharing and seeking that one participant mentioned was outdated and untrustworthy documents. Other aspects also include knowledge being lost when consultants leave the company, unorganised folder structures, and not having access to required knowledge. These aspects all fall into the category of governance and are discussed below.

a) **Discussion:** Team leads and project managers would need to be informed of their responsibilities regarding knowledge sharing and what is expected of them. They might also require training in facilitating knowledge discussions and navigating the knowledge base to access knowledge to share easily with their teams. Consultants would need to be informed of their roles and responsibilities when attending formal and informal knowledge sharing sessions. Guidelines should also be provided for the

processes and technologies that need to be used when having formal and informal training sessions.

b) **Documentation:** Guidelines should be provided for consultants about what knowledge should and should not be captured. Guidelines should also outline how knowledge needs to be captured and stored, as well as indicate what technologies to use and processes to follow when creating documentation. This will ensure that all captured knowledge is consistent between teams within the department, which can allow for easier retrieval of knowledge as well.

c) **Synthesisation:** Team leads and project managers will need to ensure that knowledge is not duplicated on the knowledge base. For project documents, duplicate files should not be created, making proper version control and retention management vital to discard unnecessary documents. For informal and formal knowledge sessions and training, team leads and managers should ensure that knowledge is not duplicated either and that consultants are rather referred to the existing knowledge than asked to recreate the same documentation.

d) **Finding and reviewing:** Consultants would need to be trained on the proper processes for creating taxonomies, storing documentation and knowledge sources, and navigating the knowledge base. If there is no proper governance on storing and tagging documents, consultants will struggle to find and retrieve the knowledge that they require, and the knowledge will not be reusable.

The factors mentioned above form the knowledge sharing strategy for this study. Although various aspects of knowledge sharing are found within the literature and the empirical study, this knowledge sharing strategy has been developed with the habits and preferences of the participants of the study in mind and aims to ensure easier knowledge sharing between team members at this particular IT consultancy. This strategy will avoid over-complicating the process of knowledge sharing and will prevent consultants from feeling that their workload increases by participating in knowledge sharing activities. This strategy will also ensure governance, which will allow consultants and project managers to keep updated documentation and discard outdated documentation.

Figure 1. Framework for a knowledge sharing strategy

6.4 Limitations of the Study

The following limitations were identified from the literature review and data collection:

Limited research could be found in the literature on knowledge sharing within South African IT consultancies. Additionally, as this is an international organisation with three departments at their South African branch, only a small portion of the organisation was studied, and the result could have had a different outcome if other departments or other branches were also

included. This study was also limited to only one IT consultancy in South Africa. Finally, due to time constraints on the study, the knowledge sharing strategy could not be implemented. The researcher could, therefore, only provide recommendations to the consultants and the company through the strategy.

For the research design, limitations were also identified. Quantitative studies could provide more conclusive results than qualitative studies such as this one, where participants share their own opinions that may also include bias. Of the research methods, this case study aimed to only describe the needs and preferences of the participants instead of implementing the outcome of the study at the organisation. Regarding the sample, only a few consultants agreed to contribute to the study, so the findings could have been different if more consultants became involved.

6.5 Value of the Study

The theoretical and practical contributions of the study and the value it added to the consultants and the field of Information Science are described below.

6.5.1 Theoretical value

The theoretical value of this study is twofold: First of all, this study contributed to the limited existing research on knowledge sharing within South African IT consultancies, therefore enhancing the field of Information Science, with a focus specifically on knowledge sharing. The second value the case study provided was in its insights into the knowledge sharing practices, preferences, and hindrances of IT consultants within South Africa, as well as through the above-mentioned recommendations to circumvent these hindrances with a knowledge sharing strategy. This research can, therefore, be beneficial to other IT consultancies that are experiencing similar constraints regarding knowledge sharing.

6.5.2 Practical value

This study provided practical value in the following ways: It has granted IT consultancies insight into how consultants share knowledge and what these consultants believe could be improved regarding knowledge sharing. The study provided consultants with an opportunity to share opinions anonymously on the current state of knowledge sharing within the

organisation that they would most likely otherwise not share with managers or team leads, and these findings can now be used by management to improve how consultants interact and share knowledge with each other inside and outside of projects. Various participants mentioned that the interviews made them realise the importance of knowledge sharing and helped them to realise where they could improve. These participants saw the study as a valuable learning opportunity and could, therefore, identify room to grow in their own work, as well as areas for change in how they share knowledge and communicate with colleagues.

6.6 Recommendations for Future Research

The following suggestions can be subjects for future research: Primarily, the participants used the terms knowledge sharing, knowledge management, and knowledge conversion interchangeably during the interviews, even though definitions of each were provided at the beginning of the interviews. Therefore, training should instruct consultants in advance on unfamiliar concepts to ensure they understand the differences between these terms. Next, the knowledge sharing strategy developed in this study could be implemented within the consultancy to measure its success, and the study could even be expanded to include a larger portion of the organisation. Finally, future research could also include more emphasis on knowledge conversion by focusing on how consultants create new knowledge instead of sharing their existing knowledge with each other.

6.7 Conclusion

In closing, Chapter 6 provided the conclusion to the study by summarising the findings from the literature and the case study, both regarding knowledge management and knowledge sharing. This chapter also presented the theoretical and practical value that this study has provided, not only for the fields of Information Science and Knowledge Management but also for the IT consultancy. It discussed future research recommendations that could be conducted based on this study and examined limitations of the research design, literature reviews, and the empirical component. Finally, through the research questions that were answered in Chapter 5, Chapter 6 presented the knowledge sharing strategy for a South African IT consultancy, focusing on the aspects of people, processes, technologies, and continuous

governance through the knowledge sharing process while recognising the importance of interaction between consultants.

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8. Appendices

Appendix A: Pre-prepared Interview Questions

1. Background Information Questions:

The following section gathers information on the participant's experience at the organisation.

1.1. How long have you been with Company A?

2. Personal Experience Questions:

The following questions gather the participant's own experiences of knowledge management, knowledge sharing, and knowledge conversion within the organisation.

2.1. What knowledge management tasks do you conduct during or after a project? (For example, documenting lessons learned or writing knowledge-based articles to store on a repository)

2.2. What knowledge sharing tasks do you conduct during or after a project? (For example, sharing documents with team members)

2.3. What knowledge conversion tasks do you conduct during or after a project? (For example, providing training to team members)

2.4. Can you please evaluate how much you value knowledge sharing?

1	2	3
Not Valued	Slightly Valued	Highly Valued

2.5. Can you please evaluate how much you value knowledge conversion?

1	2	3
Not Valued	Slightly Valued	Highly Valued

2.6. Would you value a person's knowledge over other popular information sources, such as books on best practices, journal articles, YouTube videos, etc.?

2.7. How has knowledge sharing helped you with projects?

2.8. What knowledge sharing strategies could you suggest?

3. Organisational Questions:

The following questions gather information on the organisation's knowledge sharing practices from the participant's point of view.

3.1. How could knowledge sharing be beneficial on projects?

3.2. Describe any current knowledge sharing practices that you are aware of within the organisation.

3.3. Describe any difficulties you have experienced within the organisation regarding knowledge sharing.

3.4. Describe any difficulties you have experienced within the organisation regarding knowledge management.

3.5. Do some teams have better ways of sharing knowledge than others? Are there any standout examples of knowledge sharing practices within teams you have worked with in the past?

3.6. How would you describe other people's view of knowledge sharing within the organisation?

3.7. Why would you or why would you not consider people more knowledgeable if they are more likely to share knowledge?

Appendix B: Letter of Consent from Ethics Committee

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie / Lefapha la Boetšenere, Tikologo ya Kago le Theknolotši ya Tshedimošo

16 March 2023

Reference number: EBIT/230/2022

Ms D Stuart
Department: Information Science
University of Pretoria
Pretoria
0083

Dear Ms D Stuart,

FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Research Ethics Committee refers.

Approval is granted for the application with reference number that appears above.

1. This means that the research project entitled "Developing a knowledge sharing strategy to promote knowledge conversion within a South African IT consultancy" has been approved as submitted. It is important to note what approval implies. This is expanded on in the points that follow.
2. This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Code of Ethics for Scholarly Activities of the University of Pretoria, or the Policy and Procedures for Responsible Research of the University of Pretoria. These documents are available on the website of the EBIT Research Ethics Committee.
3. If action is taken beyond the approved application, approval is withdrawn automatically.
4. According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of the EBIT Research Ethics Office.
5. The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Prof K.-Y. Chan
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY