A PLAN FOR IMPROVING THE CITY OF CAPE TOWN CORPORATE INTRANET BY APPLYING KNOWLEDGE SHARING INSIGHTS

HERBERT GREGORY EVANS
EVNHER001

Supervised by: Mr Richard Higgs

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Department of Knowledge and Information Stewardship

University of Cape Town

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Plagiarism Declaration

I understand the meaning of plagiarism and declare that all of the work in the document, save for that which is properly acknowledged, is my own.

Herbert Gregory Evans.

Abstract

Corporate intranets are an essential technology used by organizations to manage their digital information resources. An effective intranet service must balance the resource requirements of its users with the restrictions of the corporate network as well as coordinate an effective digital information storage and retrieval service. In addition, intranets typically also provide an internal communication channel and serve as a key vehicle for the corporate culture of the organization.

The City of Cape Town municipality's existing intranet platform is in the process of being migrated to more modern technology, allowing for the redevelopment of key functions including the underlying information architecture, associated site navigation elements, search and site metadata, inter alia. As a member of the intranet's custodian department, the researcher is well positioned to conduct a study of the existing intranet service offering, and to offer an assessment of improvements needed to meet the needs of the modern digital workplace.

The research study examines the role of the corporate intranet as a Knowledge Management (KM) and knowledge sharing tool, with a focus on iterative improvement. Key areas that are examined include the performance, configuration and management of the network infrastructure; site content management; intranet site structure and design; site navigation; site search and search results performance; the application of site governance and usage policies; the expression of corporate culture through the intranet service; the role of the intranet as a collaboration platform; and the requirements of the modern digital workplace in respect of key services including information retrieval and collaborative tools.

The study's primary research data is drawn from interviews with key users of the corporate intranet selected via snowball sampling. The resultant qualitative data is interpreted and compared with insights from the KM literature and the researcher's own institutional knowledge, and areas of improvement are identified. The findings are to be presented to the intranet redevelopment team, and will contribute to improving the corporate intranet service. The study also makes a contribution to existing research in the field of KM, Action Research case literature and intranet design theory.

Contents

1. Introduction

1.1 Background

This study considers the role of a corporate intranet as a knowledge management (KM) and knowledge sharing tool and how it can be configured to best serve its user community to allow for effective deployment, access and preservation of digital resources across an organization. The City of Cape Town (CCT) municipal intranet (also branded in the organization as "CityWeb") has been chosen as the case study for this research. The municipality's position as a key structure of local government (Moletsane et al. 2014:282) means that its management of internal data repositories, including utility services databases; ratepayer account databases; land use management databases; budget allocations; geospatial databases; staff employment records; policy and by-law documentation, inter alia, can affect both the efficient internal functioning of the organization as well as its ability to deliver services to the residents of Cape Town.

The importance of this function of local government is noted by Pretorius and Schurink (2007:19) who observe that "one of the most important indicators in assessing the transformation of local government is the experiences and perceptions people have of service delivery in their day-to-day lives" in order to "prioritize and satisfy the needs of the communities they serve." The authors' emphasis on transformation highlights the political imperative to provide a more inclusive service to residents that is more accessible, open, transparent, value for money and which redresses past inequality (19). Odendaal (2007:41) likewise remarks that "e-government is efficient, effective, and enhances service delivery." For the purposes of this study, the primary research interest is the role that the CCT corporate intranet, via its implementation of KM strategy, plays in enabling public servants to work more efficiently and thereby also improve service delivery to the residents of Cape Town.

Moletsane et al. (2014:287) note the need to provide leadership training for the management team and to invest in modern computer systems as a means of ensuring efficient service delivery to communities. Cordella and Tempini (2015:279) likewise argue that the adoption of information and communication technologies in public sector organizations generally aims to "reduce the inefficiencies generated by bureaucratic burden". The authors posit that a successful ICT implementation can greatly enhance the organization's ability to produce, process and exchange information "between citizens, between citizens and the public administration, and among different branches of the public administration, to deliver public services" (Cordella and Tempini, 2015:280). They are of the view that, rather than seeking to eliminate bureaucratic processes, the role of ICT solutions should be to automate "machinery bureaucracy" (i.e. routine and predictable processes) in order to allow the organization to focus on dealing

with "professional bureaucracy" (i.e. complex, ambiguous processes) which require human judgment (Cordella & Tempini, 2015:280).

Currently, the CCT intranet is built upon Microsoft SharePoint 2010 server technology which is rapidly approaching the end of its product lifecycle, with official Microsoft support set to terminate on 13 October 2020[1]. As a result, the CCT intranet is being transitioned to SharePoint 2016 in a managed migration to ensure the integrity of the platform post-2020. This transition provides an opportunity to restructure the existing CCT intranet site to improve functionality for the user community and to improve efficiencies of information architecture, search functionality, document classification and medium- to long-term storage and retrieval of digital assets.

This planned transition provides an opportunity for studying the effect of applying a participant observation methodology to improve the CCT corporate intranet. By examining the existing intranet service and interviewing users of the platform, the researcher can formulate a plan of action for iteratively improving the service offering based on the insights gained. In the process, a data-led analysis of emerging trends will provide the academic basis for contributing towards a deeper theoretical understanding of KM in the context of corporate intranets which adds to the existing body of knowledge and that can be more widely applied.

The social dimension of the intranet plays a vital role in ensuring that technical services fulfil their intended function of enabling the work of the user community. Failure to achieve integration with the user community has resulted in poor KM and knowledge sharing implementation that is well documented (Tsui, 2005; Roberts, 1998; Dalkir, 2005). It is therefore essential to incorporate rigorous user testing during the development phase to ensure that the systems that are designed and deployed will work synergistically with the existing corporate culture and not simply meet information technology specifications. While information technology factors are not trivial (Chua & Lam 2005:13), excessive focus or over-reliance on technology is a major contributing factor to KM project failure (Davenport & Prusak, 1999; Nonaka & Takeguchi, 1995).

Chua and Lam enumerate several key social aspects of organizational culture that are critical to the success of a knowledge sharing project implementation. These include personal, group and organizational factors such as perceived image, internal politics and lack of management commitment to the project. The authors also draw special attention to the critical role that content plays, remarking that "content which is outdated, irrelevant, ill-structured or has inadequate coverage can often be the cause of KM failure" (Chua & Lam, 2005:14).

[1] Q.v. Microsoft Lifecycle Policy: https://support.microsoft.com/en-us/lifecycle/search/9344 ; SharePoint upgrade information obtained via project documentation.

While upgrades to the City's enterprise software system for the intranet are slowly entering implementation phase, the vision for an improved method of knowledge management has long been contemplated by the municipality's administration. This can be observed in the naming convention which has been applied to the various departments. Many are now prefixed with the term 'integrated' in a bid to counteract the traditional 'silo' approach to knowledge curation. Access to knowledge resources have in the past typically been restricted to the custodian department or unit. This has meant that specialist knowledge has remained unavailable to the broader organization, or has otherwise needed to be accessed via a network of social contacts - utilising the 'it's not what you know, it's who you know that matters' approach to knowledge sharing.

The researcher, as a contracted employee of the Digital Communication Department, has been involved in the intranet redevelopment project as an advisor tasked with reviewing the CCT intranet's information architecture, its user interface, deployment of relevant apps and webparts, content deployment and site management policies, inter alia. The researcher is engaged in ongoing dialogue with the Integrated Knowledge Management and Information Systems and Technology departments to refine the intranet redevelopment project in respect of these design aspects.

1.2 Research problem

Large organizations face a mounting challenge to effectively manage large volumes of data in such a way as to preserve the integrity of the record and to allow for easy retrieval of the data by users who require access (Cordella & Tempini, 2015: 280). In addition, identifying and serving up only the most relevant information requires a sophisticated search and retrieval process in order to meet user expectation and invest value in the data that is being presented (Stenmark, 2005:1).

In the past, municipal records have consisted largely of paper-based repositories due to historical administrative practices (Svard, 2014:12; Mxoli et al., 2019:213) and local government has been slow to adopt digital technology due to various constraints (Odendaal, 2007:38). Even with the shift to digitisation and the conversion of previous manual processes to online, many departments still require some form of hard copy to accompany the electronic submission process (Mxoli et al., 2019:213). For instance, the City of Cape Town's building plan and land use submissions were only converted to an exclusively online process on 1 July 2019. The City's tender submission process also typically requires a large volume of paper-based documentation which is reviewed by the Supply Chain Management Department and then captured as scans in PDF. This leaves a large repository of paper-based records which are not currently accessible through the CCT intranet, or are not easily searchable in their current digital format.

In addition to data sets that are excluded from the digital repository, the City also faces challenges with the management of its digital data repositories. In the researcher's experience, current practice does not utilise a consistent set of standards for capturing, classifying, storing and retrieving digital records. As a result, the digital assets are poorly marked up with metadata (B:61)[2], are captured in unsearchable image scans, are distributed haphazardly across the intranet and may be kept in SharePoint My Sites, teamsites or the main intranet site often in deeply nested file structures. This makes retrieval difficult since search queries are frequently ineffective (B:11) and mostly rely on the user (or a colleague) knowing where in the system the record is located (B:2). The time spent searching for records stored on the intranet incurs significant cost in terms of work hours. It also results in duplication of records in various locations which problematizes effective records management as multiple versions of a document or database may exist (B:65). This in turn calls into question the integrity of the data as the file being retrieved may contain either incomplete, inaccurate or outdated data.

The storage of data in the My Sites or teamsites sections of SharePoint limits user access. It is not always clear if this restriction of access is intended, or if users do not understand the access limits set by SharePoint based upon its various deployment sites. At any rate, access permission is a problem area and requires urgent attention to ensure that confidential or sensitive data is only accessible to authorised users, and that general access documents are made freely available (B:66).

Furthermore, there is no consistent method of archiving of records for long-term storage. While the City's Integrated Knowledge Management Department does provide a formal archiving structure via its SAP implementation, in practice only a limited number of records are migrated to this service (B:68). In the researcher's experience, the majority of departments use the SharePoint platform as their primary archival repository, in addition to storing their access versions of departmental records. In many instances, there may in fact be no distinction between the working document repository and the archive. The problem is exacerbated by inconsistent filename practices which may give no indication of the contents of the file. In addition, there is limited integration between the SAP and SharePoint platforms which also poses interoperability constraints on information retrieval from the archive.

[2] The participants have been anonymised in accordance with the research study requirements and a reference code has been applied to allow for citation from the interview transcripts. Full transcripts are available as a virtual Appendix B, hosted in a Research Data Management environment at https://figshare.com/s/c69fb9b9172f54bcd138 or DOI: 10.25375/uct.22041137 (when approved). Interviewees are coded by number (1 or 2) indicating their designation as either round 1 or round 2 interviewees; and letter (A – G). Refer to Table 4.3 for further detail. For the sake of brevity, references to pages in this appendix are formulated as 'B: [page number]'.

The aim of this study is to analyse the above challenges from a user perspective and to propose a restructuring of the intranet service, including its document classification system; use of metadata; repository management; and other relevant data management practices to provide a more effective data storage and retrieval system which follows digital data management best practices. By ensuring the integrity of the digital record, it is expected that operational efficiencies will be improved through reliable data retrieval and KM services which, in turn, will result in improved services to residents.

The challenges faced by the CCT municipality are not unique, as evidenced by the case studies in the literature review. In the South African context, both the municipalities of eThekwini (Averweg, 2012) and Stellenbosch (Gafoor & Cloete, 2010) face significant KM challenges, including the need to establish a formal KM strategy; securing support from key stakeholders in their organizations' management structures; implementing sound KM practices for document repositories, and encouraging the adoption of modern knowledge sharing practices. The case literature further emphasises the challenges and constraints faced by more rural municipalities (Mawela et al., 2016:2). Internationally, the case literature similarly reflects a shortfall in implementation of KM strategy, as evidenced in the challenges faced by the Surrey County Council (Skok & Kalmanovitch, 2005) and the City of Prague Municipality (Carrizales et al., 2011).

1.3 Research questions

In order to give the research some direction, it is useful to consider a number of fundamental questions regarding the object of study.

The primary focus of this study will aim to answer the question: "What strategies can be applied to improve the City of Cape Town corporate intranet to make it an effective resource for its user community?"

In order to answer this research question, the following aspects will be considered:

1. How is the CCT intranet currently structured?
2. What challenges can be identified?
3. What are the main needs of the user community?
4. Which improvements should be prioritised?
5. What factors limit the effective implementation of intranet best practices?

1.4 Significance of the study

The CCT intranet serves a large community of municipal departments, including both the municipality's administrative and political structures. As the central data

repository, it functions as a key resource which enables the City administration to function effectively. The intranet also provides a platform for internal communication at an organizational level. The limitations imposed by the current intranet configuration provide a less than optimal user experience, and much can be done to improve the delivery of digital assets as well as corporate messaging.

Government administrations have historically been hamstrung by complex bureaucratic processes which often delay projects endlessly, to the detriment of the communities in which they are located (Ndevu & Muller, 2017; Koppelman, 2018). A more coordinated digital process promises to greatly simplify this onerous mechanism. Any gains in data accessibility (process flows including applications, approvals, reports, appeals, etc.) and in the integrity of the records being served and applications being processed will reflect in a faster, more accurate and targeted response from the City administration - whether on an internal management level, or in terms of on-the-ground service delivery to residents (Ndevu & Muller, 2017; Kroukamp, 2008). As such, a streamlined and reliable intranet service will in theory enable a more efficient municipal service.

The purpose of this study in addressing the research problem from a participant obsrvation approach is to provide reflective analysis on what aspects of the existing intranet are problematic, and to propose improved methods as they emerge from using the system, and from the user community feedback. It is intended for this study to expand the existing case literature, and to serve as a resource for further improvement – both methodologically, as it applies to the process of making changes and reflecting on their effects, and more concretely, as a basis for future iterative improvement of the CCT intranet.

1.5 Research methodology

The knowledge sharing framework underpinning the design and deployment of a corporate intranet will be considered and applied to the CCT intranet redevelopment project. A useful point of departure for considering this aspect is the statement offered by Kimiz Dalkir (2005:3):

> Knowledge management is the deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure in order to add value through reuse and innovation. This coordination is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning.

This emphasis on the reuse of information sources is essential to ensuring organization-wide access to digital resources. By structuring the City's intranet so that digital resources are both easily findable and shareable, much of the effort required to retrieve relevant data is eliminated. Dalkir (2005:21) further notes

that "each organization should define KM in terms of its own business objectives". In assessing the current state of the intranet (SharePoint 2010 deployment), a survey will be taken of the site structure, its offering of services and applications, data storage locations, method of records classification, and use of metadata to serve up information to its user base. The participation of users will also be considered in terms of communities of practice, where knowledge workers share expertise and collaborate. Using this as a basis for constructing a view of the intranet's usability, data accuracy, integrity and effective management of its knowledge resources, the remainder of the dissertation will consider what can be done to improve performance to deliver a more effective intranet service through the application of the principles of digital curation.

1.6 Limitations and delimitations of the study

The limited scope of this study, namely, its application to a single case, necessarily limits the focus of the research to those aspects most salient to the organization under consideration. The findings being presented here are therefore far from exhaustive. However, as a case study, this research permits close analysis of context-specific problems of digital asset management and user engagement within an intranet platform which may have applicability to organizations of similar size, function or structure.

The methods of analysis as well as the proposed solutions offered are also predicated on existing technology and technological knowhow. Therefore, what is possible to implement at the time of writing may differ from what is possible at a later date. It should also be noted that SharePoint 2016 was selected as the preferred technology for hosting the intranet service, and forms a prerequisite for the upgrade project. For this reason, alternative platforms are excluded from consideration as they do not form part of the planned redevelopment. The main focus of the study has been to work within the constraints imposed by the City of Cape Town's Information Systems and Technology (IS&T) policy and to consider the most practical improvements under the circumstances.

In accordance with the City of Cape Town's research application processes, the study's sample set is restricted to those employees approved by the Research Office. The participation of the interview candidates also depends on their availability and interest in the study. Long approval timelines also restrict access to only two rounds of interviews.

The progress that the project team makes on designing and implementing the intranet upgrade will necessarily affect the research being undertaken. If project milestones are not met timeously, or if deliverables are not implemented, this will limit the researcher's access to vital feedback channels. While the main aim of the research is to apply a participant observation methodology to the study, there is a risk that the action enquiry cycle may not be completed within the available

timeframe. In this case, the data that is collected remains valid and can provide insights into organizational knowledge sharing strategies that can be used at a later date for further research or practical implementation.

1.7 Summary

This chapter provided a brief overview of the research study to contextualise the researcher's auto-ethnographic role, to give a summary of the CCT corporate intranet and to consider the research opportunity presented by the intranet redevelopment project. The research problem was presented, along with the research question and sub-questions that the study will aim to answer. The significance of the study was discussed, emphasising both its practical application in seeking to improve the existing CCT corporate intranet for its user community, and the opportunity for reflective analysis that will allow the study to make a contribution to the body of knowledge for KM, the existing case literature and to Grounded Theory. The research methodology for the study was presented, emphasising knowledge sharing as the guiding framework for assessing the CCT corporate intranet's performance, and seeking ways to iteratively improve it in terms of usability, data accuracy, integrity and effective management of its knowledge resources. The chapter concludes with an overview of the limitations and delimitations of the study.

2. Literature review

2.1 Theory and research design

2.1.1 Grounded Theory

Grounded Theory was put forward by sociologists Barney Glaser and Anselm Strauss (1967) as a "new method of analysis" (Charmaz & Thornberg 2021: 305) that focussed on the research process. Their concept introduced a "systematic strategy of simultaneous data collection and analysis" (Charmaz & Thornberg 2021: 306) that served to develop their nascent concepts and focus their research on the most relevant issues. This approach often led to a rethinking or relinquishment of disciplinary concepts that researchers assumed would best fit their data, resulting in a more open and transparent methodology (Charmaz & Thornberg 2021: 306 – 307).

This new method of conducting research also aimed to "defend the quality of qualitative research" (Charmaz & Thornberg 2021: 305) which had been broadly criticized by US quantitative sociologists in the 1960s (Charmaz & Thornberg 2021: 309). Glazer and Strauss argued that "qualitative research must be evaluated on its own canons, not on those imposed by the dominant quantitative tradition" (Charmaz & Thornberg 2021: 310).

Specifically, they disputed the notion that researchers could know the 'right' questions to ask before beginning their study and proposed that:

(1) Research questions had to arise from studying empirical situations
(2) Deductive hypothesis testing undermined developing new theoretical approaches; and
(3) Thus, reduced the quality, relevance and usefulness of the research products

(Charmaz & Thornberg 2021: 310)

According to Grounded Theory research design, theory emerges from the data as it is parsed, or, to use Glaser and Strauss's phrasing, it is "the discovery of theory from data" (Glaser & Strauss, 1967:1). This process goes beyond the "grounded modifying of theory" attributed to Merton (1949:157) who acknowledged the role of serendipity in the research process, to encompass a method that aims at "purposely discovering theory through social research" (Glaser & Strauss, 1967:2). The intimate connection forged between theory and data via this methodology lends the emerging theory a direct relevance and stability which tends to endure through subsequent modifications or reformulations (Glaser & Strauss, 1967:4).

The emphasis on pragmatism, context and empirical methods is a common thread for all subsequent variants of Grounded Theory. The main variants are noted by Timonen et al. (2018) in their synopsis of trends in the field from Glaser and Strauss's classical Grounded Theory (1967:2) which emphasises theory construction and takes a positivist approach; to objectivist and reflexive Grounded Theory as articulated by Strauss and Corbin (1990) which applies a more rigorous data collection and interpretation methodology; to Clarke's situational analysis (Clarke, 2005:3) which grounds itself in the specificities of the research, notably in its concept of "positionalities" and its prioritising of context; to Constructivist Grounded Theory as presented by Charmaz which marks a break from positivism by pursuing an "interpretive rendering" and acknowledges "inherent subjectivity" in the research endeavour; and to Critical Grounded Theory (Charmaz, 2014:3) which espouses a critical realist perspective (Kempster & Parry, 2011; Lee, 2016; Oliver, 2012) and relies on CS Pierce's concept of retroduction, which "consists in studying the facts and devising a theory to explain them" (Pierce, 1965:90).

For the purposes of this research enquiry, the Critical Grounded Theory approach is in closest alignment with the research aims. As Timonen et al. note, this method of enquiry "begins with critical observations and / or experiences of the critical issues prior to the study and seeks to enact change" and through which process "theory can be further developed or modified as new data are gathered," (Timonen et al., 2018:3). This emphasis on iterative analysis leads to a second key methodological framework that is relevant to the research enquiry, namely, Action Research with its deployment of the action enquiry cycle as the means of interrogating processes and applying incremental changes aimed at improving performance.

2.1.2 Participant observation approach

This research study aims to apply the insights gained via direct engagement with the object of study, i.e. the CCT intranet service, to put forward practical suggestions for its improvement. While the study is limited to the implementation of a single action enquiry cycle, the intention is also to provide a framework for further improvement by the development team. In addition to practical improvements, a theory of intranet design will be developed based on the emergent principles and best practices. As with the practical aspects, the theory that is developed will be subject to revision as further work is undertaken to better understand how intranet design may contribute towards refining our theoretical knowledge of the intranet.

The participant observation approach takes Action Research as its guiding methodology but, due to the failure of the intranet project to reach implementation stage during the course of this study, the findings based on reflections from the data collection and analysis phase could not be applied and tested. Therefore, the study is necessarily restricted in its scope. However, sufficient data was collected

to enable a plan of action to be developed, and this is presented in the final chapter.

The origins of Action Research as a methodology are uncertain since, as Tripp notes, "people have always investigated their practice in order to better improve it" (Tripp, 2005:444). Notwithstanding, the term 'Action Research' is first associated with the social psychologist Kurt Lewin, who used the concept to determine how best to effect positive change in social group settings. In pursuing a plan of action, Lewin notes that the best approach is to formulate an "overall plan" along with a first step. Thereafter, a "fact-finding" function is performed to correct the course of action to best meet the envisioned goal. This action enquiry process is then repeated until the goal is achieved (Lewin, 1946:37-38). In form, this process is akin to the organizational knowledge creation model described by Nonaka (1994:20), in which a trial-and-error approach forms part of a continuous "spiral of knowledge".

Coglan and Brannick note that researching one's own organization "and more particularly through an Action Research approach, is a neglected subject in the research literature." In seeking a definition of Action Research, the authors posit that it is "an approach to research which aims at both taking action and creating knowledge or theory about that action" (Coglan & Brannick, 2005:xii) noting further that the process yields "both an action and a research outcome, unlike traditional research approaches which aim at creating knowledge only."

Elg et al. (2020: 87) similarly note that "academic research is losing its relevance and becoming less useful for solving practical problems" and indicate that Action Research can serve as a means of "making contributions to both the research community and practical development" (Elg et al. 2020: 87). They point to the value of the approach, in which "understanding and action are united, in the sense that researchers create new knowledge together with practitioners" (Elg et al. 2020: 87).

Per Lewin's approach (Lewin, 1946:38), Coglan and Brannick note that Action Research (AR) is "a scientific approach to study the resolution of important social or organizational issues together with those who experience these issues directly"; AR is "a collaborative, democratic partnership"; AR is "concurrent with action" with the aim of "simultaneously building up a body of scientific knowledge", and AR is "both a sequence of events and an approach to problem solving." They conclude by asserting that the "desired outcomes of the Action Research approach are not just solutions to the immediate problems but are important learning from outcomes both intended and unintended, and a contribution to scientific knowledge and theory" (Coglan & Brannick, 2005:4).

Applying this approach more narrowly to an organizational context, Shani and Pasmore (1985:439) define Action Research as:

> an emergent inquiry process in which applied behavioural science knowledge is integrated with existing organizational knowledge and applied to solve real organizational problems. It is simultaneously concerned with bringing about change in organizations, in developing self-help competencies in organizational members and adding to scientific knowledge. Finally, it is an evolving process that is undertaken in a spirit of collaboration and co-inquiry.

Tripp notes that Action Research tends to be "pragmatic" and is "clearly distinguished from practice" while at the same time is "clearly distinguished from traditional scientific research" (Tripp, 2005:446). This positions the approach as a hybrid model of inquiry that "changes what is being researched, and is constrained by the context and ethics of practice" (Tripp, 2005:446). Comparing Action Research in relation to the two poles of practice and scientific research, Tripp notes that it "is pro-active with regard to change, and its change is strategic in the sense that it is action based upon understanding achieved through the analysis of research information" (Tripp, 2005:446). Further, the author notes that while "methodology is always paramount in scientific research", for Action Research, the "research methodology should always be subservient to practice" (Tripp, 2005:446). The reasoning is that a decision on improvement can be made "on the best evidence that one can produce" rather than exclusively on an exhaustive analysis of the problem, which is often unavailable and unrealistic under the circumstances.

According to Coghlan and Shani, Action Research promotes collaborative learning by applying improvements to existing organizational knowledge to address real organizational issues. The researchers note that such learning is localized and context-specific (Coghlan & Shani 2021: 520), and may take the form of improved performance and productivity, or the development of new capabilities for innovation (Coghlan & Shani 2021: 530).

Most activities connected with routine practice are described as "naturalistic" and "simply experienced" (Tripp, 2005:446), with some tendency towards action inquiry when faced with operational challenges. Winograd and Flores (1986), citing Martin Heidegger, argue that any change in habits or views requires a "breakdown" in perception, in which the individual questions the ordinary state of things. They reference Heidegger's concept of "readiness-to-hand" which implies that, unless a situation is problematised, it proceeds unconsciously and, as it were, automatically (Winograd & Flores, 1986: 36-37). Similarly, the workers engaged in the process at hand perform their duties as a natural act and are unconscious of it. Perception of the work and its various processes, their relative effectiveness or potential for improvement is only possible when conditions arise that compel the worker to stop the work in order to reflect on the nature of the problem. The true nature of the work is thus only attainable when "a space of potential for human concern or action" exists (Winograd & Flores, 1986:37).

Action Research is "always deliberative" and requires "expert judgements" that seek to improve existing practice without first concluding an exhaustive analysis. Scientific research, by contrast, uses formal argument, inductive and deductive reasoning to produce "positivistic conclusions and predictions" (Tripp, 2005:447). Tripp further notes that "another characteristic of the reciprocal relationship between research and improved practice is that one does not just understand practice in order to improve it in Action Research, one also gains an improved understanding of routine practice through improving it, so improvement is the context, means and main end of understanding" (Tripp, 2005:448).

At the heart of the Action Research process is the concept of emerging collaborative 'communities of practice', which comprise "groups of individuals in organizations who share an interest in generating new understanding, knowledge and action about a specific challenge" (Coghlan & Shani 2021: 534). Ollila and Ystrom observe that "an action researcher is involved in events on the research site" and needs to be knowledgeable and experienced in the organization in order to be effective in producing positive change (Ollila & Ystrom 2020: 399). By tapping into these insider insights and by connecting with an organization's communities of practice, the action researcher is able to generate rich insights and actionable improvements.

Tripp notes that since Action Research is "an improvement process, one cannot Action Research routine practice" (2005:448); the author concedes that this leaves "many loose ends" as the target of inquiry is a "moving research target" (Tripp, 2005:448), and again later: "we only discover the nature of some things when we try to change them" (Tripp, 2005:449). Nonaka, in discussing Edmund Husserl's notion of consciousness as always being "a consciousness of something", similarly argues that "cognition is the activity of knowing and understanding as it occurs in the context of purposeful activity" (Nonaka, 1994:17).

Tripp notes a common misunderstanding of what Action Research is. Quoting Lippitt: "It is not research-to-be-followed-by action, or research-on-action, but research-as-action" (Tripp, 2005:449). In other words, action or change in practice should be built into the Action Research endeavour. Such theoretical aspects as may apply to this process should serve only to aid in the improvement of the practice under consideration, and not as a research end in itself: "When we theorise, our purpose is entirely pragmatic: we don't do it because we just want to know (that's 'pure research'), we ask why something is as it is only so that we can better know how to improve practice" (Tripp, 2005:450).

Ontological questions about the nature of "participant" and "participation" are considered, and the intentions of the researcher in including such aspects in the research. Tripp argues that there should be a similar level of benefit for participant and researcher, and that "ethical principles must underpin (and thereby legitimise) the procedures and ground rules of all research" (Tripp, 2005:452). This includes informed consent, the disclosure of intentions, and the expectation that changes

to practice that are either detrimental or that show no improvement are discontinued.

In their analysis, Coglan and Brannick (2005:7) note a similar complicity in the Action Research endeavour:

> Action Research focuses on knowledge in action. Accordingly, the knowledge created through Action Research is particular, situational and out of praxis. In Action Research the data are contextually embedded and interpreted. In Action Research, the basis for validation is the conscious and deliberate enactment of the Action Research cycle. The Action Researcher is immersed in the research setting.

Citing Reason and Torbert, Coglan and Brannick assert that "[a]ction researchers work on the epistemological assumption that the purpose of academic research and discourse is not just to describe, understand and explain the world but also to change it" (Reason & Torbert, 2001:7). They go into some detail regarding the nature of scientific enquiry, along with the associated epistemological and ontological frameworks which are implied (Reason & Torbert, 2001:4-9).

Traditional scientific research (positivist, realist) is situated at one point along a continuum, while the emphasis on reflexivity places Action Research towards the opposite end (subjectivist, relativist). In positivist scientific approaches, reality is assumed to exist independently from human cognition and that a "theory-neutral language" can be used to describe it (Reason & Torbert, 2001:5). Subjectivist ontology conversely assumes that reality is "an output of human cognitive process" and that all attempts at describing it are inherently value-laden and subject to interpretative processes (Reason & Torbert, 2001:5). The authors contrast the detached "third person" approach of traditional scientific modes of inquiry with the participant "first person" and "second person" approaches which infiltrate Action Research, noting that "[a]s Action Research is integrally collaborative and democratic, the quality of second-person inquiry and action is central" (Reason & Torbert, 2001:8).

The subjective bias implicit in undertaking research is widely acknowledged by theorists including Gadamer (2006:174;177;306) who offers a critique of positivist knowledge based on "historical interpretation" and "total context" that situates the perceiver as subjectively involved in the situation that they are attempting to study. The critical importance of situational context is likewise reflected in Coglan and Brannick, who cite "preunderstanding of the corporate or organizational environment" as a prerequisite to any research endeavour (Coglan & Brannick, 2005:12). Winograd and Flores similarly refer to the importance of tradition, historicity, background and interpretation that is implicit in all human experience (Winograd & Flores, 1986:7;74-76).

Argyris et al. (1985:8-9) note the emphasis that Lewin places on research participants (which they refer to as "clients") as democratic decision-makers in the change management process, or what they term "reeducation". This refers to

the process of “changing patterns of thinking and action that are currently well established in individuals and groups” with the aim of improving performance through ongoing collaboration between researcher and research participants. In evaluating this approach, Gummesson (2000) refers to Action Research as “the most demanding and far-reaching method of doing case study research” (Argyris et al., 1985:16).

Adelman (1993) notes that "Action Research must include the active participation by those who have to carry out the work in the exploration of problems that they identify and anticipate" (Adelman, 1993:9). In Adelman's view, the emphasis on participation leads Lewin to prioritise processes more than outcomes: "the fundamental tenet is studying things by changing them" (Adelman, 1993:15). Citing a later study by Coch and French, the researchers conclude that the practice of involving workers in the changes made to their workplace yields a clear advantage: "The experiment showed that the rate of recovery [of worker productivity] is directly proportional to the amount of participation and that the rates of turnover and aggression are inversely proportional to the amount of participation" (Adelman, 1993:10).

Adelman further notes Lewin's concern over the inapplicability of general laws to specific social situations: "These [hypothetical] laws do not tell what conditions exist locally, at a given place at a given time. In other words the laws don't do the job of diagnosis which has to be done locally. Neither do laws prescribe the strategy for change" (Adelman, 1993:11).

Much subsequent research in the field focuses on reform interventions in education, health and housing that is aimed at redressing social inequality (q.v. Coates and Silburn, 1970; Silver and Silver, 1991). The appropriation of Lewinian social practice by public policy advocates in their effort to deliver on their own agendas led to a refashioning of the tenets of Action Research to such an extent that the emergent policies were no longer even linked in any meaningful way to their point of origin: instead of “empowering ordinary people in their own communities, Action Research had become incorporated as part of the armoury of managerial development for 'corporate excellence'" and Lewin's ideas were "reformed as axioms rather than critically assimilated for further testing" (Adelman, 1993:16).

Standing in stark contrast to this approach is Cooperrider and Srivastva’s notion of “appreciative inquiry” which they base on the work of Kenneth Gergen (1978, 1982). The authors critique the tendency for Action Research to be regarded primarily as “merely a secularized problem-solving frame” (Gergen, 1978:132) that prioritises action but contributes little in the way of theoretical innovation. They argue that the emphasis should shift from dealing mainly with “what is deficient” to “building on what is already successful” (Coglan and Brannick, 2005:11). The authors note the recent “movement away from mechanistic research designs” towards “interpretive schemes” which recognize that human

interaction is not subject to deterministic laws but "open to indefinite revision, change and self-propelled development." To this end, citing Lewin (1951), they argue that "the theoretical contributions of science may be among the most powerful resources human beings have for contributing to change and development in the groups and organizations in which they live" (1987:133). Opposing the traditional role of scientific theory to serve a detached and predictive function, Cooperride and Srivastva (1987:139) cite Gergen's view that a reimagined approach to theory can have a generative function, i.e. it can shape and change social reality through application.

Andriessen (2004:393), in critiquing what he refers to as the "rigour-relevance dilemma", offers a similar view, arguing for a "design science" approach that combines traditional scientific methods with practical application. In his analysis, traditional scientific modes of enquiry ("explanatory sciences") tend to produce knowledge which has little practical application, whereas the research produced by practitioners in the field lacks sufficient scientific rigour but improves practice.

Alvesson (1999:178) similarly notes that both quantitative and qualitative research methods can often be "remote, artificial and clumsy" and their methods "steer away from giving valuable insights". Andriessen cites "engineering sciences, medical science and modern psychotherapy" as examples which embrace the design science methodology, arguing that these disciplines "use propositions to diagnose a situation, define the problem, and design practical methods to improve the situation" (Andriessen, 2004:394). He calls for a "multi-approach research agenda" (Andriessen, 2004: 401), arguing that if "research is practiced both as an explanatory science… and as a design science" (Andriessen, 2004:399) then the two approaches can complement each other.

Tripp (2005:444) notes the application of Action Research to various fields including community development (Lewin 1946); colonial administration (Deshler & Ewert 1995); organizational change (Lippitt, Watson and Westley, 1958); teaching (Corey, 1949; 1953); political change, conscientization and empowerment (Friere, 1972; 1982); national development in agriculture (Fals-Borda, 1985; 1991); and banking, health and technology (Hart and Bond, 1997).

Taking the above as the guiding principle, a simplified participant observation approach will be applied to construct a plan of action for improving the CCT corporate intranet, and for formulating a theory of intranet design based upon the findings which emerge from the data under analysis

2.2 Applying KM to develop a knowledge sharing strategy

In an organizational context, Knowledge Management (KM) has emerged as a key methodology for coordinating a company's means of doing business competitively (Dalkir, 2005:3; Martensson, 2000:204). It has come to be regarded as a means

of improving business processes, product and services output and staff performance through the application of individual and organizational knowledge, with varying levels of success (Davenport, 1998:48-50).

The terms 'knowledge' and 'information' are cited frequently in KM literature, but there is considerable uncertainty as to their precise meaning (Martensson, 2000:213). A common misconception noted by Fischer and Ostwald (2001:64) is that knowledge and information are viewed interchangeably as decontextualized and easily captured objects. Davenport et al. (1998:43) argue that the distinction between 'information' as a raw material contrasts with 'knowledge' as a product of mental effort that emerges after it is combined with "experience, context, interpretation, reflection and perspective." Dalkir (2005:3) emphasises the importance of the practical application of this form of processed mental output by referring to it as "actionable knowledge and know-how." Much of KM practice thus aims at preserving and extending a company's competitive advantage, which increasingly is seen as inhering in its knowledge base and through the know-how of its employees (Dalkir, 2005:2). In the context of the present study, we are particularly interested in how the intranet serves as a repository and means of accessing KM processes and products, as described above.

An often-cited distinction in KM conceptions of knowledge is between tacit versus explicit forms of knowledge, as first proposed by Polanyi (1966) and later incorporated into an influential theory of knowledge creation and sharing by Nonaka (1991, 1994). Tacit knowledge refers to knowledge which comprises an individual's internal understanding of things based on know-how, experience and personal learnings (Nonaka, 1994:16) that are uncodified and often difficult or sometimes perhaps impossible to transfer. Explicit knowledge refers to codified knowledge (e.g. a standard operating procedure) that can be shared freely with other members in an organization (Nonaka, 1994:16). While some KM practitioners have tended to regard the distinction as an either-or proposition, Edwards (2015:28) notes that more sophisticated interpretation includes elements of both tacit and explicit knowledge in all knowledge objects, and McInerney (2002) places the two forms at opposite ends of a knowledge continuum.

In tracing the emergence of KM as a discipline in the 1990s, Martensson (2000:204) notes that "knowledge has always been a valuable asset" which acquired new importance as a result of the knock-on effects of corporate downsizing that was used as a management tool in the 1980s. This strategy resulted in the loss of institutional knowledge as experienced employees left, and led to the formation of various KM strategies in an attempt to codify and retain organizational knowledge as a reusable, enduring resource (Martensson, 2000:207). Our interest in this codification process is specifically focussed on the role of the intranet as the repository of organizational knowledge, and in how effectively these KM resources can be accessed and utilised.

Alvarenga et al. note the need for public and private organizations to make more rational and effective use of their knowledge resources and identify three benefits that KM brings to digital governance within a governmental context: (1) enhancement of government competence; (2) increase in quality of government services; and (3) promotion of a healthy government development (Alverenga et al. 2020: 2). However, they note that the development of a KM culture within the public sector is more challenging than in the private sector, citing a lack of KM awareness (Alvarenga et al. 2020:2).

The rise of technology as a viable system of capturing and organizing this knowledge played a significant role in shaping the way in which KM evolved within a corporate context (Martensson, 2000:208). However, as each company scrambled to adopt the new technology and implement solutions, the result was a multi-faceted approach rooted in local practice with no clearly agreed upon theoretical underpinning (Dalkir, 2005:72). This is evident in Girard and Girard's (2015) synopsis of over 100 definitions in their attempt to map out the current KM landscape. Heisig (2015:151) likewise notes the interdisciplinary origins of KM, which include contributions from, inter alia, management studies, library science, psychology and organizational studies, sociology, computer science, engineering, medicine and philosophy.

The above makes it difficult to pin down a precise definition, but there is nevertheless a broadly applicable set of concepts which applies. Dalkir (2005:3) proposes:

> Knowledge management is the deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure in order to add value through reuse and innovation. This coordination is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning.

In putting forward his definition, Dalkir notes that KM practice has evolved from "applying a systematic approach" of capturing knowledge as an object to the "valuing of intellectual assets" which includes intangible assets as well as the people within an organization who possess valuable intellectual capital (Dalkir, 2005:3). While the value of IT systems is acknowledged, the role of corporate culture and the people within an organization have come to be regarded as key factors in ensuring a successful KM implementation (Tsui, 2005:3). Roberts (1998:201) similarly observes that "knowledge resides in and with individual people, the firm merely integrates the individually owned knowledge by providing structural arrangements of coordination and cooperation."

As a business asset, intellectual capital presents a complication since it is seldom quantified financially (Jarrar, 2002:326; Davenport et al., 1998:48). This results in missed opportunities as companies fail to invest in developing their intellectual resources or to leverage the competitive advantage that these assets offer.

Davenport et al. (1998:48-49) note that some firms have responded by linking their intellectual assets to a number of indicator metrics as a means of inferring the effect upon business performance. Jarrar (2002:323) notes that most successful KM implementations in corporations are linked to strategies which focus on meeting a business goal.

Wiig (1993:400) regards KM as a two-tier paradigm and views intellectual capital management (ICM) as a higher enterprise-level strategic frame that serves to complement and enable KM implementation which occurs closer to the organization's coal-face. Dalkir (2005:3) makes a similar distinction, but regards ICM as "those pieces of knowledge that are of business value to an organization" and which synthesizes knowledge into best practices rather than providing an exhaustive catalogue of all knowledge. He notes by contrast that KM typically operates as a catch-all warehousing function that seeks to index all available knowledge - a strategy which works most effectively with knowledge that has been rendered explicit.

A key distinction that has emerged in KM strategy is the tendency towards either a technocratic approach (IT-driven, systems based and focussing on information processing) versus a more people-centred approach (HR-driven, emphasising knowledge as a living resource), or some combination of the two (Edwards, 2015:40). Hansen et al. (1999:107-109) refer to these two ends of the KM spectrum as "codification" and "personalization", citing the KM practices of consulting companies like Ernst & Young and Bain as examples, respectively. Nonaka (1994:20), in a seminal paper, elaborates these elements into a nuanced KM framework incorporating tacit and explicit forms of knowledge that form part of a continuous "spiral of organizational knowledge creation" with much attention directed towards a decentralised management structure as the most effective means of creating and sharing organizational knowledge. Fischer and Ostwald (2001:60) similarly note that "KM is a cyclic process" involving "creation, integration and dissemination". These approaches both deploy an iterative improvement cycle in which workers are "reflective practitioners" and in this sense are instances of Action Research.

The main theoretical approaches to KM fall into either the IT-centric "first generation" KM models which view knowledge as an object; or the people-centric "second generation" models which regard knowledge as inhering in people, processes and technology (Edwards, 2015:40); or some combination of the two. The most influential KM models include Von Krogh and Roos's connectionistic epistemology (1995); Nonaka and Takeuchi's SECI model (1995); Choo's sense-making model (1998); Wiig's theory of knowledge organization (1993); and the ICAS KM model which is based on Beer's Viable Systems Model (1981).

In considering KM as a tool for structuring an organization's intellectual assets, Dalkir (2005:2) argues that it represents "a deliberate and systematic approach to ensure the full utilization of the organization's knowledge base, coupled with

the potential of individual skills, competencies, thoughts, innovations, and ideas to create a more efficient and effective organization". However, the author also acknowledges the practical limitations of this approach, which works best with "knowledge that has been rendered explicit" (Dalkir, 2005:3). Using a more inclusive term, "intellectual capital management", Dalkir notes that "the majority [of an organization's knowledge assets] consist of know-how, know-why, experience and expertise that tend to reside within the head of one or a few employees" (Dalkir, 2005:3).

In seeking to leverage the intranet as a knowledge capturing tool, following Nonaka (1994), we may identify a four-step process that can be applied, namely, socialization; internalization; externalization; and combination. In summary, this process involves the transfer of knowledge between tacit and explicit forms in various combinations. Each has its role in passing on organizational knowledge, from on-the-job training, which aims to transfer tacit knowledge through observation and shared experience, to the transfer of explicit knowledge via the sharing of company procedures and guidelines, etc. Of particular relevance is the conversion of tacit personal and institutional knowledge into increasingly explicit forms of knowledge that can then be codified into a knowledge base for use by other members of the organization (Nonaka, 1994:19). While acknowledging the importance of capturing knowledge in an electronic retrieval system, Scott observes that system users "should not be overloaded with information," citing prominent companies (Booz Allen and Hamilton; CAP Gemini) which make use of knowledge repositories which include a social search element allowing users to find "subject matter experts" in addition to documentation (Scott, 1998:8).

Muhammed and Zaim (2020) refer to this social search element as "peer knowledge sharing" that incorporates "activities involved in making knowledge available to others" (Muahmmed & Zaim 2020: 2456) that can occur vertically (between supervisor and subordinate) or horizontally (between colleagues). They emphasise the growing importance of "explorative" knowledge-sharing over "exploitative" knowledge-sharing, noting that "organisations focussed on innovation are becoming less vertical and hierarchical and more horizontal" (Muhammed & Zain 2020: 2456).

Citing Nonaka, Scott (1998:9) notes that extracting tacit knowledge is a challenging process requiring "repeated, time-consuming dialogue... via a metaphor-analogy model sequence" that aims to relate new concepts "through analogy to things that are already understood". For product development processes, iterative prototyping can serve a similar purpose. Additional strategies include "brainstorming" and the use of hyperlinks to "relate concepts and organize knowledge repositories" (Scott, 1998:9). By successfully capturing critical knowledge, companies benefit from a consolidation of expertise that is then available throughout the organization. This promotes coordination and collaboration, while at the same time reducing any reduplication of effort. Citing Olivetti: "If a problem has already been solved by one employee, we can find out

about it immediately and avoid duplicating efforts" (Scott, 1998:10). Dalkir (2005:4) notes the importance of ensuring that any knowledge thus gained be "stored in such a way as to make their future retrieval and reuse as easy as possible".

However, Hansen et al. remark that a common mistake is to attempt to "turn inherently tacit knowledge into explicit knowledge" (1999:115). Ellison et al. (2015:104) likewise observe that "[p]rior research from organizational communication and management scholars often treats knowledge sharing as a mechanical process of information transfer… without adequately considering social dynamics or interpersonal processes". They argue that knowledge sharing is "an equivocal process involving sense making and interpretation" which includes "dyadic exchanges of information between individuals to ongoing problem solving and coordination in formal project teams to large-scale organizational brainstorming to generate solutions to global challenges" (Ellison et al., 2015:104). Davenport et al. (1998:56) likewise note that "knowledge seems to travel most felicitously through a human network".

Fischer and Ostwald (2001:62), in their "design perspective" approach to KM, posit the use of a knowledge "artifact" as a means of externalizing an idea so that it can be analysed by knowledge workers operating cooperatively in communities of practice. This externalization exposes "breakdowns" in understanding and compels the participants to reflect on and build "new, shared understandings." Once a viable solution is found, a new knowledge product emerges that "integrates the individual and the group knowledge" to the benefit of the organization. However, while this is the desired KM practice, the authors note that traditional KM systems tend to be "closed systems" and operate on the assumption that workers perform routine tasks that have been "anticipated and described" (Fischer & Ostwald, 2001:62). For KM systems to be effective, they must be permitted to grow and develop organically in the form of living information repositories as the need arises.

Muhammed and Zain similarly argue that the success of KM efforts in an organization hinge upon a "knowledge-friendly culture" where individuals are free to share their knowledge with others with minimal structural limitations (Muhammed & Zain 2020: 2463). Citing Huysman and De Wit (2004), they note that "knowledge sharing made a greater impact when it used personal networks rather than those based on managerial instructions" (Muhammed & Zain 2020: 2463). In the context of the present study, the intranet should therefore be configured to allow peers to connect with each other via the online tools and not be restricted from doing so by onerous IT policies and permissions.

The study will apply the above KM principles to develop an effective data-led knowledge sharing strategy for improving the CCT corporate intranet. The detailed plan is presented in the concluding chapter.

2.3 Intranet

Flowing from the above discussion on KM, let us examine how these processes and products can be effectively applied via a corporate intranet to promote effective knowledge sharing. As Lacosta and Thomas (2020: 1) note, knowledge sharing is "facilitated by digital technologies" and promote the "capitalization of knowledge" and have evolved from knowledge storage systems to interactive intranet environments that permit "real exchanges and collaboration". In this sense, we may regard the intranet as our primary (although not exclusive) vehicle for enabling access to KM services for the organization as a whole.

Stachova et al. note that the importance of the integrated enterprise concept which includes both "inter-company networks" and "open and knowledge-based systems" has become a predictor of success (Stachova et al. 2020: 1). The ability to implement big data analysis has far-reaching benefits, including more objective and effecting HR decision-making. In addition, routine tasks can be automated to free up staff for more specialised tasks while at the same time delivering powerful tools to improve their performance (Stachova et al. 2020: 2).

Scott (1998:4-5) attributes the rise of intranets as a corporate "phenomenon" to a "complex interaction between technology and management factors" as well as to the increasing interconnectedness of organizations across the globe, noting "a need for increased communication and collaboration across functional, geographic and organizational boundaries." The asynchronous form of intranet communications (email, teamsites, discussion groups, document libraries, etc) also provided a means of conducting operations across time zones without the need to meet in real time (telephone, video conferencing, etc).

Initially implemented as a relatively autonomous tool for company employees to develop, intranets have since evolved to host company mission statements, messages from top management, documentation on internal work processes, reports, and news feeds, inter alia. From a management perspective, the increasing importance of capturing organizational knowledge is a result of corporate restructuring aimed at streamlining cost by "flattening hierarchies, downsizing, and reengineering" with the result that organizational knowledge has become increasingly "systems-based" (Scott, 1998:6).

This shift towards institutionalisation also connotes a tension, as "management mandates could threaten autonomy" (Scott, 1998:7) and thereby impose strictures on the free flow of ideas or impose a system which is not conducive to effective knowledge creation. Citing a number of prominent companies (Sun Microsystems; Nortel; Digital), Scott notes that some teams have elected to erect silos around their operations to preserve their autonomy: "engineers may have made a groupware-like environment for their engineering team without considering what other teams were doing" (Scott, 1998:7). Nonaka's notion of

"self-organizing teams" provides an alternative approach that seeks to preserve autonomy and promote trust within an organization (Nonaka 1994:23-24).

The adoption of intranet systems was (and remains) a function of organizational culture, which Yeh et al. (2006:797) define as the unique combination of values, beliefs and models of behaviour in an organization; and which Taylor (2007: 30) refers to as "group tacit knowledge" that is "extremely difficult to teach".

Dalkir (2005:26) notes that

> a clear distinction must be made between information — which is digitizable — and true knowledge assets — which can only exist within the context of an intelligent system… this means that knowledge assets reside within the human knowers, and not the organization per se. A knowledge information cycle can be envisaged as the route information follows in order to become transformed into a valuable strategic asset for the organization via a knowledge management cycle.

Scott notes that "resistance to change is a classical problem" that is alleviated by "ease-of-use" (1998:6). This is in addition to other factors such as trust issues between employees and management that includes the threat of redundancy once expertise has been transferred (Scott, 1998:7; Davenport et al., 1998:52).

Choo (in Dalkir, 2005:xiii-xiv) notes similarly that "many organizations quickly discover that their most daunting task is to cultivate the norms of trust, cooperation and mutual respect that nourishes the creation and sharing of knowledge," noting further that "departments in organizations are naturally territorial and guarded about losing control of where their information goes to, and how it might be used." Davenport et al. (1998:53) likewise note that "knowledge does not emerge from or easily flow across role or functional boundaries." Fischer and Ostwald (2001:71) note that "sustained collaborative work practices require an incentive" for the participants in the form of "social capital." In this model, recognition is given for "contributing and receiving knowledge as a member of a community."

Coghlan and Shani (2021), citing Birkinshaw (2018), note that the rapid development of new technologies creates "learning opportunities for the development of new skills and knowledge, increasing human development and capabilities (Coghlan & Shani 2021: 532). They further note the potential for "rethinking work and ways of organising that will enhance human development" as technology allows organizations and individuals to become more connected (Coghlan & Shani 2021: 532).

Wehner et al. (2017:125) contend that the rise of social media has expanded the scope of workplace communications, as younger employees use the new technology in the performance of their work duties. As a result, "corporations have

started to implement enterprise social media in their portfolio of IT applications." This may be in the form of embedded applications built into the intranet portal itself, or referenced as a parallel communication channel for employees to use in addition to the existing intranet service offering. The authors observe that the advantages of providing social media channels include "supporting collaboration, strengthening social connection, fostering situation awareness, and facilitating knowledge management" (Wehner et al., 2017:125) in the form of communities of practice.

However, despite this attempt, they maintain that "usage [of enterprise social media] often dwindles after an initial spike" (Wehner et al., 2017:126), suggesting that staff remain loyal to their preferred platform (WhatsApp, Facebook, etc.). The aforementioned trust issue may also play a role in limiting the adoption of enterprise social media applications, with teams typically creating their own autonomous group channels to host discussions and knowledge sharing. Skok and Kalmanovitch (2005:733) also raise the risk of "false knowledge, misinformation, and propaganda in the absence of control."

Scott (1998:10-14) describes the business case for an intranet from an IT perspective, referencing improvements in efficiency and effectiveness related to business operations via three key criteria, namely, automational effects, informational effects and transformation effects. Automational effects refer to automated workflows via electronic applications that allow for the automated processing of administrative functions. These include payroll systems, approval processes, HR service requests, etc. (Scott, 1988:11). Informational effects refer to the advantages that include the ability to extract analytics data, to track project status, to utilise electronic search functions to locate information, and simply also to give employees access to information directly via their workstation. This is in addition to reducing cumbersome manual processes previously associated with the dissemination of information, such as the printing of documents and any associated distribution such as via postal delivery. The intranet provides further informational functionality in the form of discussion groups, multimedia groupware environments (i.e. virtual meetings) and other collaborative platforms that allow users to interact and share knowledge (11-12). Transformation effects refer to the means through which intranet systems deliver services which were previously not possible, costly or inconvenient. Examples include the ability for the network to serve information to users based in different geographical locations or time zones. Also relevant is the implementation of information standards which ensure operability across platforms (13-14).

While the above summarizes the advantages conferred by a corporate intranet, Scott concludes by noting the challenges associated with maintaining an efficient and reliable information service. This includes managing "the volume of information and huge numbers of disorganized documents… decaying links, obsolete information and information redundancy" (Scott, 1998:14). Also significant is the company IT department's commitment to adopting new

technologies as they emerge and incorporating this into the network's development, as well as maintaining the IT infrastructure to ensure effective delivery of services (Scott, 1998:14). From a management perspective, it is essential that sufficient staff and resources are allocated to ensuring that the corporate intranet can be operated efficiently. A key aspect includes nurturing an organizational culture that is accepting of the medium, and which supports a collaborative and cooperative user environment (Scott, 1998:14).

2.4 Enterprise Social Networking

Applying social media technology to the organizational setting extends traditional communities of practice outside of the regulated work environment. Ellison et al. (2015:111) suggest that enterprise social networking (ESN) technology

> "provide[s] users with the capacity to enhance knowledge sharing by giving individuals greater awareness of others' activity and by providing the ability to visibly articulate connections to others, allowing employees to navigate knowledge resources throughout the organization, as well as affording opportunities to restrict or limit knowledge sharing."

The shift towards a networked organizational structure deemphasizes traditional hierarchical workplace processes, with Dalkir (2005:2) noting that "organizational hierarchies are being put aside as knowledge work calls for more collaboration." Ellison et al. (2015:114) similarly argue that "communication is central to the organization's functioning." Nonaka (1994:17) argues that neither a top-down nor a bottom-up organizational structure is conducive to creating knowledge, calling instead for a "middle-up-down" management approach which allows all members of the organization to contribute towards knowledge creation, according to their unique perspective (30).

Nonaka observes elsewhere that "an organization cannot create knowledge without individuals" and that the main purpose of the organization is to provide a "context for such individuals to create knowledge" and to "amplify" and "crystallize" their efforts. Citing Brown and Daguid's (1991) notion of "evolving communities of practice" which incorporate internal as well as external stakeholders as a vital part of effective organizational communication and knowledge creation, Nonaka further notes that "these communities reflect the way in which people actually work as opposed to the formal job descriptions or task-related procedures that are specified by the organization" and that "attempts to solve practical problems often generate links between individuals who can provide useful information" (Nonaka, 1994:23).

Of particular note is the influence that the Covid-19 pandemic has had in accelerating the adoption of ESN tools (Tonnessen et al. 2021: 2). The changing communication environment also transforms the ways in which the members of an organization interact, with an emphasis on the social aspect of communication. By using ESN technologies, companies aim to "develop the social ties necessary

for exchanges and combination of knowledge (Lacosta & Thomas 2020: 1). The inclusion of ESN technologies also points to the necessity to extend the traditional notion of intranets as repositories to incorporate more dynamic, interactive communities of practice that allow users to combine existing knowledge in new ways to solve problems.

The value of incorporating personal information along with organizational information includes "greater group cohesion", "common ground" and "mutual understanding" (Ellison et al., 2015:112-113) with the researchers noting that "individuals may be more likely to contribute content to a site that has social gratifications, compared to a traditional company directory." The range of interactions include "sharing knowledge, engaging in organizational politics, understanding the work environment, and collaborating in the everyday work of teams," (Ellison et al., 2015:114). The authors also note factors which restrict the free sharing of information, including risks associated with publishing on a "publicly visible and archived forum" and associated challenges including "context collapse" and "self-presentational concerns" (Ellison et al., 2015:115-116).

Several studies conducted prior to the Covid-19 pandemic have found that staff who use ESN tools demonstrate improved creative performance citing "flexibility, autonomy, and lack of distractions" as key drivers (Tonnessen et al. 2021: 2). However, another study notes conversely that the reduction of spontaneous ad hoc meetings as a result of COVID-19 restrictions "impedes knowledge sharing and spontaneous coordination" and that "the withdrawal of the work environmental affordances can threaten the problem-solving and innovation capabilities of the team" (Waizenegger et al. 2020: 434 – 435).

2.5 Related studies

2.5.1 eThekwini Municipality

In evaluating the knowledge-sharing capability provided by the eThekwini Municipality's intranet implementation, Averweg (2012) bases his analysis on secondary data obtained via Ask Africa, and as reported in the eThekwini Municipality Intranet Research Report (2006). Data collection was conducted via email surveys sent to municipal employees to poll their views on various aspects of the intranet implementation using a Likert-scale format.

A dedicated organizational unit, the Municipal Institute of Learning (MILE), oversees the organization's KM function (Averweg, 2012:3). The author notes the role of the IT department as "an important enabler" (2) for the storage, organizing, dissemination and socialisation of organizational knowledge (3) and cites technical processes including "quick searching" and "retrieval of information" as well as

social processes including "cooperation and communication between the employees in an organization" (2) as examples of this. From the account provided, the KM endeavour appears to be largely IT-driven, with limited input from management or staff. However, this impression may be a result of a research bias which emphasises this aspect.

The analysis provided seeks to identify the intranet implementation maturity level as "low", "medium" or "high" with corresponding KM functionality. Low maturity includes uni-directional accessing of information; medium maturity includes using the intranet for collaboration including "the sharing of information and for conducting organizational interaction between employees"; while high maturity includes using the intranet as "a common user interface to back-end applications" as well as enabling five "modes of utilisation", namely, "publishing, transacting, interacting, searching and recording" (Averweg, 2012:2).

The limited scope of the survey questions only allows the report's author to conclude that the eThekwini intranet implementation is at "medium maturity level" and that "information sharing" is evident, with "limited evidence" in respect of "knowledge sharing" (Averweg, 2012:4-5). Averweg concludes with a recommendation to implement communities of practice via MILE; and to consider how Web 2.0 technologies can enhance collaboration and contribute towards knowledge-sharing processes.

2.5.2 Stellenbosch Municipality

Gaffoor and Cloete (2010) consider the application of KM to the improvement of service delivery in the local government context, taking Stellenbosch Municipality as their case study. The research utilises a qualitative approach in which several senior municipal managers were interviewed about their knowledge and understanding of KM and its application in local government.

The authors note that, while many studies focussed on the corporate context, little attention has been paid to KM in the public sector, and specifically local government (Gafoor & Cloete, 2010:1). They also note the "businesslike reforms" advocated by the New Public Management approach that is supported by national government along with national policies and legislation which includes the Municipal Systems Act (No. 32 of 2000), the Batho Pele legislative framework and the Integrated Development Plan (IDP) to which municipalities are bound. The authors further note that The Department of Provincial and Local Government has identified KM as "a key managerial skill for senior managers at local government level" (Gafoor & Cloete, 2010:4).

The authors motivate for the application of KM processes as a means for Stellenbosch Municipality to "be strategically aligned with their clients to provide better services… by gaining a better understanding of their clients' needs" (via Fowler and Pryke, 2003:254). Drawing on the concept of KM enablers (Yeh et al., 2006:795), Gaffoor and Cloete (2010:3–4) argue for a holistic approach to KM

implementation which includes organizational culture, human resources, information technology, organizational structure and strategy and leadership. They contend that, while national emphasis has been placed on managerial KM competencies, "not enough prominence is given to the need for an organization-wide implementation of KM systems" (Gafoor & Cloete, 2010:4), stating that "South African local governments need to become aware of the significance of KM in achieving organizational and subsequent service delivery successes" (Gafoor & Cloete, 2010:5).

In their analysis, the authors note that senior managers in the Stellenbosch Municipality remain unfamiliar with KM concepts and their application, with a recommendation that "greater awareness of its importance and subsequent benefits needs to be instilled" (Gafoor & Cloete, 2010:5). While there is "a willingness to share information and a proclivity toward the implementation of KM efforts", a culture of "lack of enthusiasm to learn how to utilise technologies and information" poses a challenge (5) and needs to be addressed. It is also observed that departments operate in "functional silos" and display "hesitation" to share knowledge across departments.

In respect of IT infrastructure, the municipality has implemented a range of modern IT systems, but these various solutions hamper the free sharing of information across the network, with the authors noting the need to implement "an organization-wide information system" (Gafoor & Cloete, 2010:5). In terms of organizational structure, the municipality's top-down management hierarchy is not an ideal arrangement for KM practices, with the authors highlighting the organization's "bureaucratic nature" and tendency to deter horizontal communication flows. A formalised KM strategy is not evident, with only one department allocating a position for a KM officer. Gafoor and Cloete maintain that the acceptance and support of the organization's leadership is the biggest constraint to KM adoption.

In conclusion, Gafoor and Cloete make four recommendations for improvement, viz.: establish an explicit KM strategy that is aligned with the municipality's IDP and which is supported by the organization's leadership; build a knowledge repository which includes best practice documentation and which makes key information easily available; incentivise employees to contribute towards knowledge creation, sharing and management via communities of practice and similar group interactions, and create a KM department to oversee the organization's KM activities (Gafoor & Cloete, 2010:6).

2.5.3 Surrey County Council

In their study on intranet implementation at Surry County Council, Skok and Kalmanovitch (2005) describe the role of the intranet system in the Surrey Social Services Department (SSD). Their study aimed to assess the performance of the intranet service as a KM tool and to recommend improvements.

The authors, citing Von Krogh and Kleine (1998), regard the differing epistemological approaches to intranet implementation as falling on a continuum spanning strictly technical to more people-centred models, in line with Hansen's model described in Section 2.2. They identify three main nodes, namely, cognitivistic, connectionistic and autopoietic approaches. In summary, cognitivistic implementations emphasise technical solutions to the problem of information management. Connectionistic implementations function as a tool for connecting users to information by incorporating rules and procedures to guide the structuring of information. The autopoietic implementation seeks to incorporate people into the knowledge sharing process by including them as searchable and contactable knowledge resources.

Their analysis of the SSD's intranet implementation records its progress from a cognitivistic to a connectionistic model, a "two-stage strategic response …typical of organizations faced with developing a knowledge strategy to maximise returns on knowledge assets" (Skok and Kalmanovitch, 2005:739). They also observe conflicts in implementation related to "a major mismatch between user needs and the single intranet solution" as well as "confusion relating to organizational and individual targets" (Skok and Kalmanovitch, 2005:739-740). Dissatisfaction is reported as a function of the difference in epistemological orientation, with users operating within the autopoietic frame reporting the greatest frustration.

The study recommends aligning the intranet implementation with the identified user and organizational needs and requirements. The authors stress "the danger of attempting to apply a single solution approach to the intranet" and recommend "multiple channels to facilitate the flow of knowledge" by developing a user platform that allows for a mix of epistemological orientations (740). Their analysis incorporates user requests for improvements and a change management programme to focus on key areas for improvement. They emphasise the need to incorporate improvements in IT infrastructure, information architecture and to foster a culture of knowledge sharing, along with provision for "a sufficient support structure (human and financial)" (Skok and Kalmanovitch, 2005:741).

2.5.4 City of Prague Municipality

In considering the effectiveness of e-governance at local government level, Carrizales et al. (2011) take the City of Prague Municipality as their case study. The study employs a mixed methodological approach and seeks to identify the five best performing administrative districts via a quantitative analysis by application of a survey administered by the City's Central IT Department. Thereafter, a qualitative study of these top performers is undertaken. This involves interviewing 13 local government IT managers to further their insight into the digital governance programme. The stated aims are the further improvement of e-governance implementation in the organization and to foster a greater understanding of successful digital government initiatives (Carrizales et al., 2011:935).

The authors note that the Prague Municipality has taken steps towards ensuring that their organization "takes advantage of new technologies and website services" (Carrizales et al., 2011:935). The municipality's 22 districts operate fairly autonomously, and run their own individual websites and e-governance programmes. They have the support of the city mayor and city government officials, which is according to the authors "critical to e-governance performance" (Carrizales et al., 2011:936).

While the study is not focussed on intranet implementation directly, there is a close interface between the municipality's external website service offering and the internal intranet system which serves as the backbone to the municipal KM project. The authors note that the initial investment in an intranet system for District 1, while not appropriate for producing an external website, nevertheless compelled the district staff to take responsibility for managing and maintaining their websites (Carrizales et al., 2011:941). This led to a redesign of their online portals and the creation of a content team that included a wide range of stakeholders, from internal district staff to members of other district offices and external vendors. Citizen feedback was also incorporated into the redesign project. This collaborative approach, which included the establishment of service agreements, dramatically improved the district's e-governance offering.

Districts 5, 6 and 16 employed the services of contractors to create and implement their website and intranet services. In the case of District 5, a large private company was appointed to manage the IT services. This decision was motivated by succession planning and an emphasis on security considerations. Through a collaborative partnership that included formal review processes, the district staff were able to ensure an effective service offering and still maintain control over content production (Carrizales et al., 2011:942-943). Districts 6 and 16 employed smaller contractors to deliver IT services. In the case of District 6, a trust relationship was built between the IT contractor and district officials that allowed for the implementation of new functionality on a monthly basis, in accordance with client needs. This took the form of innovative ideas in response to daily website and intranet usage. While this approach yielded valuable improvements, the lack of a formal KM strategy is noted with the authors observing that "to sustain performance over time… a more structured process" is required" (Carrizales et al., 2011:942). In District 16, a decentralized approach to content management was followed, allowing each department to contribute to the upkeep of the website while an IT contractor was responsible for web design and hosting. The result was a website and intranet that is continuously maintained by a dedicated cohort of staff who are committed to ensuring a user-friendly service.

District 14 implemented a website and intranet solution on the initiative of a dedicated member of the ICT Department, and made use of open source and freeware applications to build the systems. The project received support from the head of the ICT Department and the mayor, who authorized the creation of a webmaster post to which the original developer was appointed. This allowed for

the coordinated development of a robust set of KM systems without incurring the costs associated with contracted IT services. The webmaster's technological expertise also allowed for customized systems development to meet the changing client needs.

The authors conclude that "the use of information technology in the public sector represents a dramatic potential for savings" (Carrizales et al., 2011:944) but caution that it is vital to ensure successful implementation, as a large proportion of government technology projects fail to meet their goals. The learnings taken from the case studies include the need for greater coordination across districts to promote knowledge sharing and to develop a set of implementation standards. Reliance on external contractors is also flagged as a risk, as public agencies may "lose the ability to set strategic goals and achieve a digital government vision for the future" (Carrizales et al., 2011:944). Following on from this, the authors recommend improved strategic planning and performance review processes to ensure the delivery of high quality services.

2.6 Summary

This chapter presented a review of the literature applicable to the research study. The section on theory and research design provided an overview of Grounded Theory and Action Research, which serve as the theoretical and methodological framework of the study. A review of KM literature examined the concepts and application of KM principles to the research in the context of the City of Cape Town municipality, with emphasis on Nonaka's SECI theory and the 'spiral of knowledge' through which an organization produces, organizes and shares its knowledge to effect iterative improvement and optimise performance. The section on intranet provided a synopsis of the rise and significance of this technology as a critical knowledge sharing tool within an organization. The chapter concluded with an examination of four case studies that offer insight into the challenges of applying KM principles to municipalities.

3. Research methodology

3.1 Introduction

This chapter presents the research methodology that was employed in approaching the research questions set out in Chapter 1. Due to the researcher's personal and ongoing involvement in the intranet upgrade project that forms the focus of this study, it was evident that the traditional hypothesis-based deductive model would not be the most effective means of evaluating the project. In addition, decisions on the new intranet system needed to be made based on qualitative factors such as the practical challenges reported by project team members, user experience feedback on the legacy intranet system, or on functionality commissioned by management. An inductive approach was therefore deemed to be the most appropriate to respond to the research problem. Grounded Theory is the research paradigm which formed a best fit with the continuous in situ collection, analysis and application of data, in conjunction with Action Research implemented via participant observation as the main methodological approach. In addition, the research is informed by relevant key concepts from Knowledge Management (KM) as set out in the literature review.

Grounded Theory is not a theory as such, but rather a research design that aims to produce theory (Glaser & Strauss, 1967:2). This method of enquiry "begins with critical observations and / or experiences of the critical issues prior to the study and seeks to enact change" (Timonen et al., 2018:3). The same applies to Action Research, which is a research methodology that applies an iterative process of assessing, effecting change and reflecting on the results as a means both of improving practice and contributing to the body of theoretical knowledge via its action enquiry process (Tripp, 2005:1). In seeking to apply this methodology to the context of the CCT corporate intranet upgrade project, Action Research forms a natural fit with Nonaka's cyclical 'spiral of knowledge' which similarly uses an iterative trial-and-error approach to improving organizational knowledge (Nonaka, 1994:20).

Nonaka's SECI model as described in Chapter 2 has since been expanded upon by other theorists such as Leydesdorff (2005) whose "triple helix model" extended the spiral of knowledge to incorporate the role of society in the knowledge creation process. Senge (2006) developed Nonaka's concept further as five "disciplines" in his model of the "learning organization". Critics including Snowden (2005) and Bratianu (2010) have argued that Nonaka's model lacks empirical evidence, oversimplifies complex processes involved in knowledge creation and management, and ignores the role of individual agency in the knowledge creation process. Other management theorists including Scott (1998), Davenport & Prusak (1999), Dalkir (2005), and Fischer and Ostwald (2001) have also contributed to the field of KM, building on Nonaka's work.

While this study aims to answer a research question related to improving the CCT corporate intranet, this is predicated upon meeting the needs of its user community through practical application. An action enquiry cycle is applied and aims to yield practical improvements based upon the insights gained on reflection. The initial data collection involves interviewing and assessing a sample of the user community and collating this data with the researcher's own input in order to establish baseline qualitative data for the study. The data set comprises the subjective views and opinions of the study participants in response to a set of semi-structured interview questions designed to elicit their response on predetermined key performance areas. This form of data collection makes it appropriate to conduct the study using qualitative research methods (Winograd & Flores, 1986; Coglan & Brannick, 2005). The research also includes relevant supporting quantitative data analysis where applicable. Based upon the insights gained, the researcher, as a participant in the intranet upgrade project, will identify key areas for improvement and apply changes to the CCT redevelopment project.

A critical reflection on the data will be used to formulate a plan of action; to reflect on what changes may work best (and why). The results will be used to reflect on and contribute to the existing body of theory and knowledge as recommended by Coglan and Brannick (2005:4). Based upon the insights gained, further recommendations will be made to iteratively refine the intranet project redevelopment process. Due to the limited scope of the research study, only two rounds of participant interviews were conducted.

In addition to contributing towards the academic literature on Grounded Theory, Action Research and KM case literature, the findings of this study will be made available to the project team to inform ongoing project development and thereby contribute towards an improved intranet service offering at the City of Cape Town municipality.

3.2 Research design

The research design for this study applied several methodological approaches in order to deliver an effective data collection and analysis instrument. The researcher's involvement in the study as both a contracted employee of the Digital Communication department at the City of Cape Town municipality, and as the primary researcher for the study, implied an auto-ethnographic positioning. As Alvesson (1999:177) notes, this approach relies on "familiarity with the setting as the empirical starting point."

While this positioning implies that the researcher's interpretation of the data would be informed by subjective and indeed insider insights, it also suggests that the researcher would have greater familiarity with the object of study than would a

third-party observer (Alvesson, 1999:178) and is therefore well positioned to identify the most salient areas for investigation. Adler and Adler (1987) refer to this positioning as a "complete member role" and advocate for "understanding in use" over the "reconstructed understanding" of more detached research methods. The insider bias is acknowledged, and forms an integral part of the Action Research methodology, as Coglan and Brannick (2005:4) note: "Action Research is a collaborative, democratic partnership" that involves research which aims at "both taking action and creating knowledge or theory about that action" (2005:xii).

Tripp (2005:446) argues that in Action Research a decision on improvement can be made "on the best evidence that one can produce" rather than exclusively on an exhaustive analysis of the problem, which is often unavailable and unrealistic under the circumstances. As a corollary, it can be added that since the aim of Action Research is to improve practice in the context of a constantly or rapidly changing real-world setting, the application of more thoroughgoing positivist statistical research findings to the problem would likely be obsolete by the time its results become available.

In contributing towards the body of knowledge for Action Research, the collected data will form the basis for developing an understanding of the object of study via a retroductive process of "studying the facts and devising a theory to explain them" (Pierce, 1965: 90). The aim is subsequently to apply the learnings gained to improve practice (Timonen et al., 2018; Tripp, 2005). This approach situates the research methodology firmly within the sphere of Grounded Theory, and applies a critical realist perspective on the findings. Oliver (2012) offers a cogent analysis of how both quantitative and qualitative research methodologies have a role to play in producing theory, with each method best suited to particular types of data. Critical realism is viewed as a method of combining objective, evidence-based data with individual meaning-making or "socially constructed truths" (Oliver, 2012:2). This approach links research more closely with practice and thereby provides a coherent theory / methods package (Oliver, 2012:2).

By coding the participants' data into common themes, the analysis seeks to identify patterns that allow for the identification of key categories to be linked back to the research presented in the literature review. The coding process was supported by the researcher's own notes on the participants' responses to the semi-structured interviews and to the ongoing work on the intranet project generally, as a form of constant comparison of the data (Charmaz, 2015).

Since the research aimed to scrutinise the corporate intranet in close detail, a case study approach to data collection and analysis formed part of the methodology. Yin (2003:7) notes that research which focuses on addressing "how" and "why" questions typically make use of a case study approach for their research strategy when addressing a "contemporary phenomenon within its real-life context" (2003:12). This approach incorporates a review of available documentation, as

well as direct observation and the use of interviews with the project participants (2003:8). By relating the research question both to the intranet project as a whole and to the study participants in their personal capacities, a holistic view of the problem could be obtained, along with potential solutions based upon the research findings. While such findings are specific to the organization, relating it to the case literature allowed common trends to be identified. This method aimed to perform analytic generalisation in the form of theoretical propositions based on the aggregated case literature (Yin, 2003:10).

3.3 Description of the research method

An initial review and summary of the structure and function of the CCT intranet was conducted by the researcher to provide context. A list of categories extracted from the review to reflected the CCT intranet's key performance areas that formed the focus of the semi-structured interviews. A sample of 10–15 research participants was targeted for interviews to gain their views and opinions on the existing CCT intranet's key performance areas in terms of utility, ease of use, relevance and business value. In addition, participants were requested to suggest improvements to the intranet's design and performance that they regard as being of most practical benefit to them in their daily work. It was anticipated that each interview would last up to a maximum of 30 minutes and take the form of face-to-face discussions or telephonic discussions, depending on participant availability.

3.4 Population sampling

Snowball sampling was applied to select research candidates from a cross-section of the municipality's line departments. An initial set of 5 candidates was consulted on recommendations for additional nominees who would be best suited to contributing their insights to the study.

This sampling method, also termed "chain-referral sampling", is a recruitment method where an initial candidate recommends additional participants best suited to provide information related to the research study aims. Noy (2008:329) contends that this approach draws on "the dynamics of natural and organic social networks" as a "data accessing method" that is well adapted to personal interactions, arguing that positivist statistical methods fail to capture this effect of knowledge-in-process. The knowledge that research participants have to impart is not monological, but dialogical – that is to say, it is subject to "co/re-creation in the course of the interview interaction" (Noy, 2008:332). In applying this method of sampling, it is also notable that the researcher relinquishes direct control over the sampling procedure, allowing for a "respondent-driven" sampling (Noy, 2008:332).

One valuable effect of snowball sampling is its tendency to reproduce existing social relations: by enlisting participants from the organization in the recruitment process, the approach "plays into the social dynamics of accessibility" (Noy, 2008:338) and frames the interview as a site of "self-enclosure and self-presentation" (Noy, 2008:339) thereby ensuring that the data that is collected is directly relevant both to the intranet project and to the user community it serves.

3.5 Data collection

Qualitative data was collected via a series of semi-structured interviews. A standard set of questions formed the interview guide (Appendix A) that was used for all participants to ensure that all relevant key aspects of the intranet development project were covered, and interviewees were invited to comment freely on aspects not covered by the set questions. Appointments were arranged at a convenient time for the participants, and took the form of video conferencing calls.

The researcher contributed personal reflections (in line with auto-ethnographical practice) on the intranet project, along with reflections on user experience challenges and any relevant detail related to the development process. These comments were included as annotations to the interview transcripts and are discussed in detail in Chapter 5.

The interview questions were open-ended, with participants free to answer in any way they saw fit. The researcher acted as facilitator and offered prompts to ensure that the participants considered all aspects of the questions relevant to the research enquiry. In addition, participants were requested to evaluate the effectiveness of the elements under discussion and to provide reasons and/or examples to support their views. Any matters raised by the participants in addition to the set questions were noted and recorded for inclusion in the data set.

Once each interview was concluded, the researcher reviewed the participant's responses and added additional notes to contextualise or further elucidate the responses, along with any personal insights which arose. Upon conclusion of the interviews, the researcher wrote up a summary and identified key categories that emerged from the interview data along with an analysis of notable trends. The collated interview data was compared with the researcher's notes and further analysis was conducted to compare the extent to which they corroborated or diverged from the research participants' results. Based upon the results obtained, a number of changes were applied to the intranet project. The study concluded with a reflection on the effect that the changes have had on the CCT corporate intranet's performance. The aggregated results were then compared to the

research presented in the literature review and the findings of the study were presented.

Data logs from the CCT intranet server were examined and analysed for trends in site access including top pages visited, However, due to the poor quality of the analytics data, only limited details could be extracted.

In addition, relevant secondary data drawn from the case literature has been used to supplement the primary data as part of the process of critical reflection, and to compare if the research study conforms with trends in the field. For the purpose of secondary data drawn from case studies, two criteria are applied. Firstly, the case studies are drawn from published and peer-reviewed journals to ensure that they are of a high quality standard and apply a sound research methodology. Secondly, the case studies should provide sufficient detail related to the research problem to make their findings applicable to the study.

In applying snowball sampling as a data gathering method, the sample set was considered sufficient for the purposes of this study when saturation was reached, i.e. when it became evident that participant responses covered the same ground in their points of focus. This saturation point was determined at the discretion of the researcher, working within the delimitations described in Chapter 1.

3.5.1 Data collection instrument

Data was collected via semi-structured interviews with the research participants. The interview questions have been formulated to cover the aspects intranet design and functionality of primary interest to the researcher, as informed by the research question and insights gained via the literature review. A standard set of interview questions provided the interviewees with the opportunity to respond to each aspect as they saw fit.

3.6 Data analysis

As discussed in the description of the research method, the data analysis applies Grounded Theory to analyse the data that is collected. Since qualitative data is subjective, nuanced and comprises verbal or written description, a textual analysis of the contents of the data was undertaken to identify similarities or differences and to develop analytical categories based upon the results of this coding process. The categories emerging from the textual analysis formed the basis for positing an answer the research question. The results were tested throughout the process, as additional data was collected, and incorporated relevant secondary data from related case studies.

In addition, relevant quantitative data was analysed and used to reflect on the participants' views and to assist in interpreting their perception of particular aspects of the study.

In a concluding process, insights from the field of KM, as discussed in the literature review, have been used to inform the process of critical reflection. Applying KM as a framework to interpret the results of the textual analysis situates the data in its context of its organizational user community. This inductive process aims to lead to the articulation of a theoretical position that is specific to the local context, but which will also add to the existing case literature.

3.7 Ethical considerations

Several ethical considerations had to be taken into account to ensure that the work being presented is compliant with academic ethics standards. These included the need for the researcher to be open and honest with the research participants so that they were fully aware of the aims and intentions of the study. In order to include the participants in the study, their informed consent also had to be obtained (Tripp, 2005). This was done to ensure that the research process is transparent and allows the participants to provide feedback which may be of value to the overall research study. Since the Action Research methodology implicates the researcher in the object of study and requires changes to be made, there is an expectation that any changes in practice that are effected as part of the study should be discontinued if they prove detrimental, or have no effect (Tripp, 2005).

The confidentiality of research participants is an essential requirement of the study. Ensuring the confidentiality of research participants along with the data collected from them has become a common practice in social sciences research as part of mandatory ethics review processes (Wassenaar & Mamotte, 2012). Since the research participants' input takes the form of personal, subjective views, it is necessary to safeguard their identity to ensure that they cannot be linked to the data that is collected. Therefore, data and research results have been anonymised.

In order to ensure due compliance with ethical standards, the researcher obtained ethics clearance from the University of Cape Town Research Ethics Committee (Appendix C). Once approved, permission to proceed with the data collection was sought from the City of Cape Town's Research Office. Upon approval, participants were sent an invitation to participate in the study via email, which included an informed consent form and interview guide (Appendix A). The invitees who returned a signed consent form were then incorporated into the study as participants.

3.8 Summary

This chapter presented the study's research methodology. The research context was discussed, and it was argued that the traditional hypothesis-based deductive model would not be the most effective means of evaluating the project. An inductive theoretical model was deemed to be the most effective method to respond to the research problem. Grounded Theory was identified as the research paradigm which formed a best fit with the continuous in situ collection, analysis and application of data, in conjunction with Action Research as the main methodological approach. In addition, the research will be informed by relevant key concepts from KM.

The research design was presented, and emphasised the need for a multi-modal approach which would allow for effective collection of data via a series of semi-structured interviews, critical reflection and input from the researcher. The snowball sampling method applied was discussed and explained. The data collection method was presented, along with details of the data collection instruments that would be deployed. The section on data analysis described how the data would be parsed via qualitative methods including textual analysis, coding and the identification of key categories and interpreted by applying insights from KM via critical reflection. The chapter concludes with a summary of the ethical considerations that apply to the study.

4. Presentation and analysis of research data

4.1 Introduction

This chapter presents the research data that was collected through a series of interviews conducted with staff members from various directorates and departments at the City of Cape Town using the data collection methods described in the previous chapter, and applies qualitative analysis to extract key insights relevant to the research questions as set out in Chapter 1. Where relevant, quantitative data collection and analysis was also performed to provide insight into the participants' views as they relate to the set interview questions, and to situate them within their organizational context for the study.

The concept of 'data analysis', especially in respect of qualitative data, is contested. As Dey (1993:1) notes, "different researchers… have different purposes, and to achieve these may pursue different types of analysis." Citing Tesch (1991:17 – 25), the author identifies three main approaches, namely, 'language-oriented', 'descriptive/interpretive' and 'theory building'. Despite this attempt at classifying data analysis into discrete modes, Tesch nevertheless concedes that such distinctions are "not water-tight" (1993:3). In essence, the type of data that the research study produces determines the mode or modes of data analysis that will form a best fit.

Baker (1982:109) notes that interview data is inherently prone to subjective bias. Interpreting interview data is therefore not an exercise only in collecting and analysing facts, but in identifying and understanding what is most significant in the views that are expressed by the interview subject.

Charmaz and Bryant (2011:299) note that

> Interviews are, of course, retrospective accounts that often explain and justify behaviour. Yet they may also be special social spaces in which research participants can reflect on the past and link it to the present and future in new ways. An interview is a performance, whether stories tumble out or are strategically calculated and enacted, but that does not disqualify interviews from providing rich data and sparking analytic insights.

The analysis techniques that were used to process the primary data set included reviewing the data demographics, compiling matrices for keywords, identifying key indicators, and conducting qualitative interview analysis to extract key themes and emerging topics relevant to the research questions. By applying narrative analysis to the individual transcripts, the participants' main concerns and insights were extracted and linked to the identified themes. In executing the analysis, the transcripts were read and annotated, the themes were categorised and segmented

to reveal their interconnections, and then reviewed to note overarching themes, and to determine if there were hierarchical structures evident in the categories. These results will be used to inform the development of an action plan to improve knowledge sharing via the CCT intranet site.

4.2 Data sources and presentation

The data collected for this study comprises a series of audio interviews conducted with City of Cape Town staff across a range of departments and directorates. The City of Cape Town's Research Office initially approved a set of five first-round interviewees. The first-round interviewees then nominated the round-two interviewees in accordance with the snowball sampling method as set out in Chapter 3.

As several second-round candidates were either unresponsive or declined to participate, two additional second-round candidates were invited to join the study, and one of these candidates also nominated one additional candidate. In total, 18 candidates were approached of whom 13 consented to be interviewed.

The primary qualitative data for this study comprised (1) the audio recordings of interviews, and (2) the transcripts of the interviews. The researcher's annotations of the interview transcripts formed a secondary set of qualitative data that was incorporated into the data analysis. These recordings, transcripts and annotations taken collectively produced a data set which emphasised "meaning" and "conceptualization" via the "articulation of concepts through description and classification, and the analysis of relationships we can establish between them" (Dey, 1993:3).

The participants' verbal responses to a series of semi-structured interview questions were analysed with the aim of developing an action plan to improve knowledge sharing via the CCT intranet. While no specific result is expected, the interpretation of results was influenced by the researcher's own experience as a participant in the project. This subjective bias is acknowledged, and forms part of the study's means of achieving meaningful insights, as noted in previous chapters.

In preparing the data for analysis, the audio recordings were transcribed using a Google transcription service and then corrected manually by the researcher. The corrected transcripts were then reviewed and annotated to identify key themes and insights relevant to the research questions. These results were collated to extract keywords and indicators, and the results are summarised below in the form of (1) a list of research participants showing the breakdown by interview stage and position in the organization; (2) a series of charts showing the research participant demographics using various metrics; (3) a keyword matrix, and (4) key indicator charts.

4.2.1 List of research participants

Table 4.1 shows the distribution of interviewees according to their allocation per interview stage, their position in the City of Cape Town's organogram, as well as their job title. A participant code has been used to anonymise the participants' identities, and is also used in the transcripts in Appendix B.

Table 4 1 – List of research participants

Interview stage	Participant code	Directorate	Department	Position
Round 1	1A	Future Planning and Resilience	Communications	Manager
Round 2 (Declined)	--	Future Planning and Resilience	Communications	Contractor
Round 2 (unresponsive)	--	Future Planning and Resilience	Communications	Contractor
Round 1	1B	Corporate Services	Integrated Knowledge Management	Manager
Round 2	2A	Corporate Services	Integrated Knowledge Management	Professional Officer
Round 2	2B	Corporate Services	Information Systems and Technology	Technical Specialist#
Round 1	1C	Corporate Services	Information Systems and Technology	Head
Round 2 (Unresponsive)	--	Corporate Services	Information Systems and Technology	Principal Professional Officer
Round 2 (Declined)	--	Corporate Services	Information Systems and Technology	Head
Round 1	1D	Corporate Services	Information Systems and Technology	Manager
Round 2	2C	Urban Mobility	Transport Shared Services	Head
Round 2 (Unresponsive)	--	Energy	Electricity Generation and Distribution	Coordinator
Round 1	1E	Corporate Services	Information Systems and Technology	Senior Business Analyst

Round 2	2D	Corporate Services	Information Systems and Technology	Senior Professional Officer
Round 2	2E	Corporate Services	Information Systems and Technology	Head
Round 2*	2F	Corporate Services	Executive and Councillor Support Operations	Manager / Acting Director
Round 2**	2G	Corporate Services	Executive and Councillor Support Operations	Administrative Officer
Round 2*	2H	Corporate Services	Citizen Interface	Senior Professional Officer

Notes on the data subject sample set:

Entries in red indicate candidates who did not participate in the study.

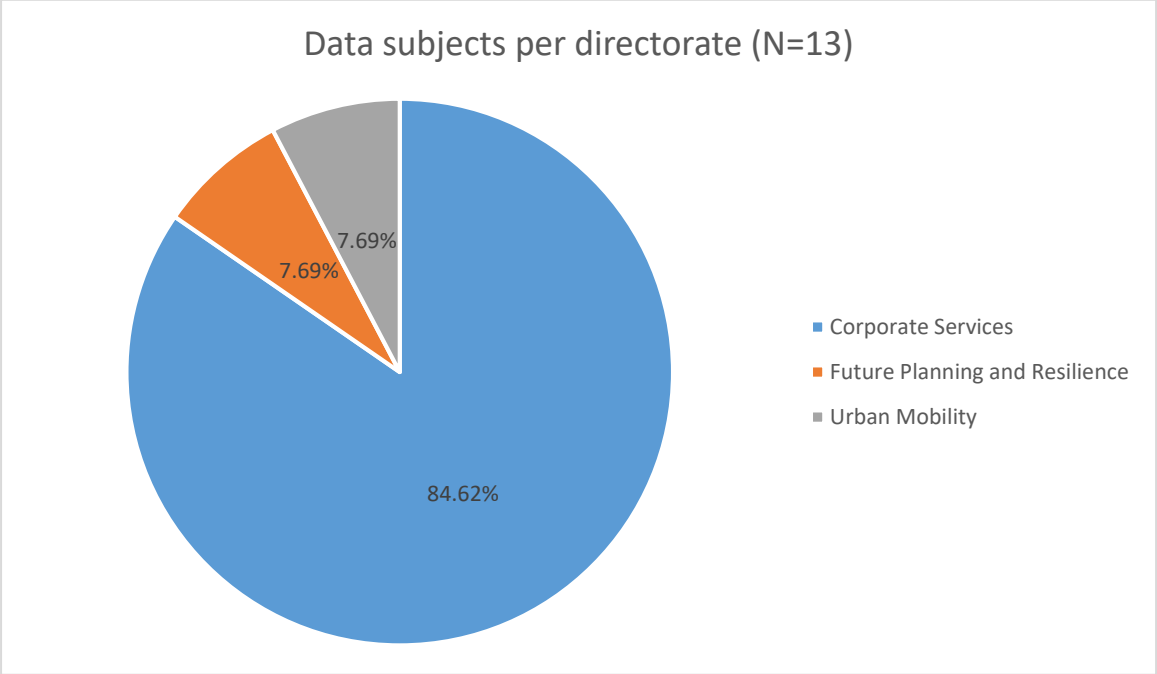
The interviewees denoted by an asterisk (*) were nominated by the researcher to supplement the sample set, due to either unresponsive round 2 interviewees or round 2 interviewees who had declined to participate in the study. The interviewee denoted by a double asterisk (**) was nominated by the researcher's supplemental round 2 nominee.

The interviewee denoted by a hash (#) was formerly a member of the Integrated Knowledge Management team, and was therefore known personally by their referrer.

4.2.2 Data demographics

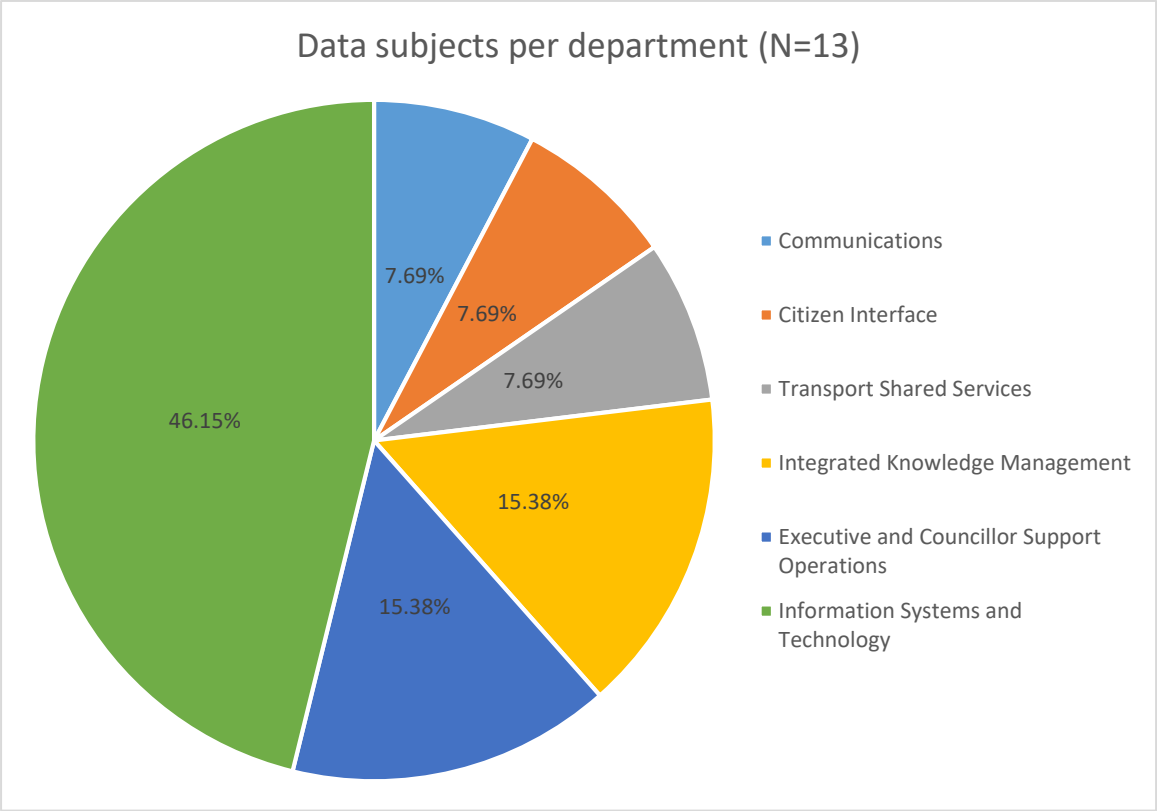
Figures 4.1 – 4.5 indicate the percentage of data subjects per metric, as denoted:

Figure 4 1 – Data subjects per directorate



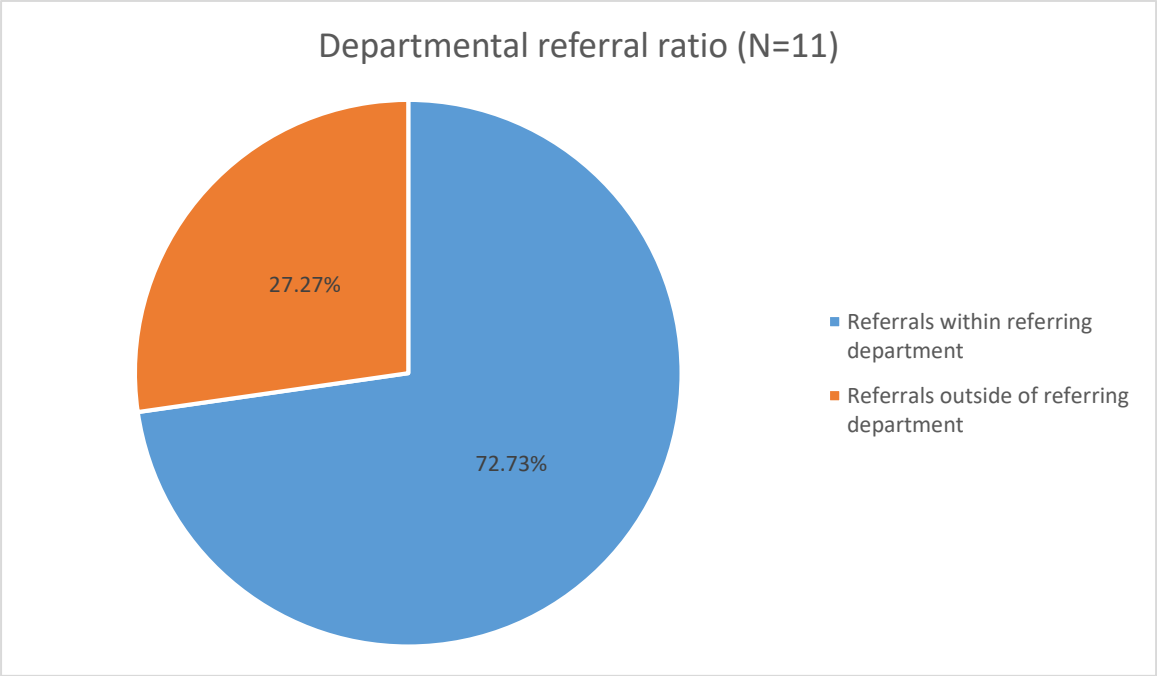
The breakdown in Figure 4.1 shows that a majority (84%) of the 13 data subjects originated from the Corporate Services Directorate. Four of the five first-round nominees (80%) were drawn from the Corporate Services Directorate, and one first-round nominee was drawn from the Future Planning and Resilience Directorate. The two round 2 nominees from the Future Planning and Resilience Directorate were either unresponsive or declined to participate in the research study, and replacement nominees were provided from the Corporate Services Directorate. The skewed round 1 nomination pool, along with the unsuccessful recruitment of the Future Planning and Resilience nominees, contributed to a candidate pool that was mainly confined to the Corporate Services Directorate.

Figure 4 2 – Data subjects per department



The breakdown in Figure 4.2 reveals a more balanced distribution of data subjects per department than the breakdown per directorate. However, the Information Systems and Technology Department, at 46.15%, constitutes the major candidate pool and reflects the initial concentration of first-round nominees drawn from the IS&T Department (60%). The emphasis on IS&T nominees appears to reflect the City of Cape Town's view that the management of the corporate intranet is largely an IS&T competency. This approach has important implications that will be discussed in the next chapter.

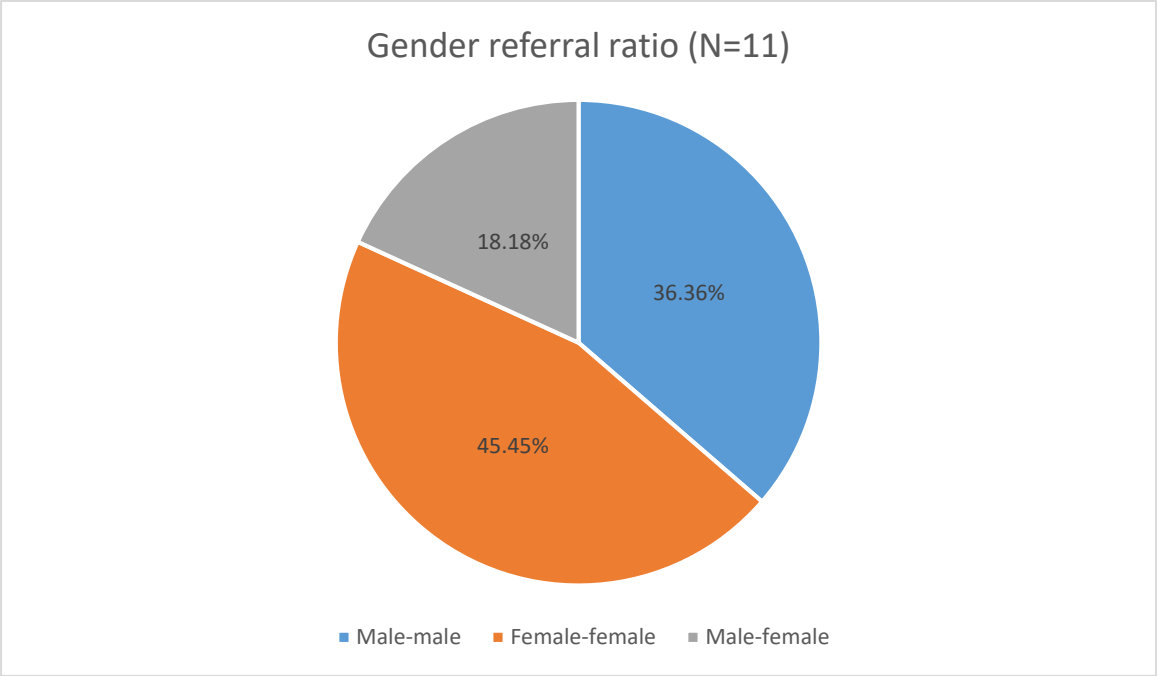
Figure 4 3 – Departmental referral ratio



The breakdown reflected in Figure 4.3 shows that a clear majority (72.73%) of round 2 referrals are to colleagues within the same department. This may be attributed partly to the referrer's closer working relationships with colleagues located within their own department; but conversely, may also be interpreted as evidence of a silo approach that pervades the organizational structure. This aspect will be explored in further detail in the next chapter, along with supporting data.

Note: Two second round candidates (2G and 2H) were excluded since they were not referrals from round 1 candidates.

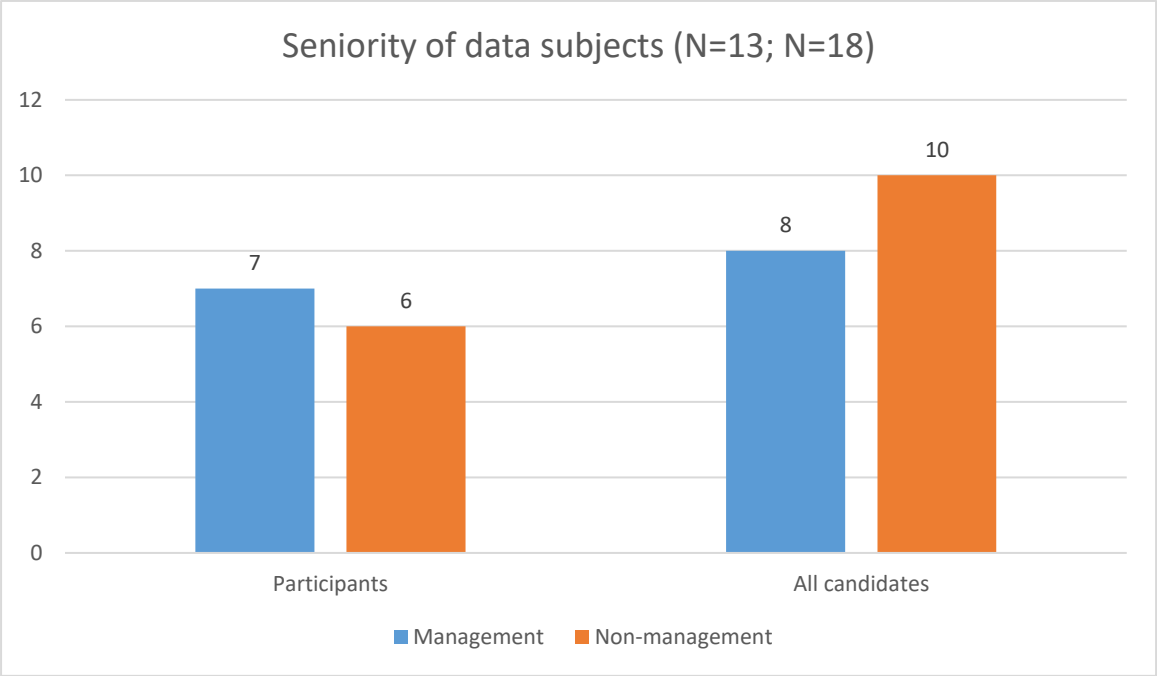
Figure 4 4 – Gender referral ratio



In Figure 4.4, the gender referral ratio shows that 81.82% of all referrals (or 9 of the 11 round 2 referrals) are to colleagues of the same gender as the referrer while 18.18% (or 2 of the 11 round 2 referrals) are to colleagues of a different gender than the referrer. The male-female referrals were from a single round 1 referrer. As with the previous chart, a silo approach may be at play here which may extend along gender lines. The evidence for such a view will be considered in the next chapter.

Note: Two second round candidates (2G and 2H) were excluded since they were not referrals from round 1 candidates.

Figure 4 5 – Seniority of data subjects



The breakdown in Figure 4.5 shows that a majority of the participants (53.84%) were drawn from management. This ratio may have implications for the interpretation of several of the key indicators since management's relationship with the organization and the instruments of the organization may differ significantly from non-management employees. Management was generally willing to participate in the study, with only one candidate out of a total of eight (12.5%) declining. In contrast, four non-management candidates out of a total of 10 (40%) elected either not to participate or were unresponsive. The next chapter considers the effect that the seniority of the data subjects may have on the interpretation of the results.

4.2.3 Keyword matrix

After transcribing and annotating the interviewees' audio interviews, a number of keywords and key indicators were identified for further analysis. The keywords represent recurring topics, services and resources in the course of the interviews and which formed focal points of discussion around the research questions related to the City of Cape Town's corporate intranet, partly guided by the set interview questions, but also comprising the interviewees' organic response to the broader research questions.

Table 4 2 – Keyword matrix

KEYWORD MATRIX

	Participant												
Keyword	**2B**	**2A**	**1C**	**2H**	**1A**	**2D**	**2F**	**2G**	**2E**	**1D**	**1B**	**1E**	**2C**
Contact			x		x			x	x		x		X
Enform	x	x	x	x	x	x	x	x	x		x	x	X
SAP Portal			x	x	x	x		x	x	x		x	X
HR site			x	x			x	x		x	x		X
SCM site	x				x				x		x		X
Covid-19			x	x	x		x	x	x	x	x	x	X
Contract management site											x		X
Tender Portal											x		X
Career Portal			x						x	x			X
CityPhone			x	x	x	x				x			X
navigation	x	x		x	x			x	x	x		x	X
metadata	x	x			x	x					x		
Body of Knowledge				x								x	
City Forms	x	x	x	x	x	x			x				X
policy	x		x	x		x	x	x	x	x	x	x	X
by-law	x			x			x	x				x	
analytics	x				x					x		x	
Google	x			x	x			x					X
WWW / internet			x	x			x	x	x	x		x	X
Skype		x	x	x	x	x	x	x	x	x	x	x	X
Team site	x	x	x	x	x	x	x			x	x	x	X
SOP	x		x	x						x		x	X
Innovation Hub	x		x	x					x		x		
interactive		x				x	x	x	x	x		x	
intuitive	x				x		x					x	X
static									x	x			
MS Teams													X
Zoom					x								X
YouTube	x			x			x	x	x	x			
Twitter		x	x	x			x	x	x			x	X
Facebook		x	x				x	x	x		x	x	X
SharePoint		x		x	x	x		x	x	x		x	X
Council site							x	x	x			x	
Councillors Online							x	x		x			
meeting calendar				x			x	x	x			x	
meeting			x		x	x	x	x				x	
Council calendar							x	x			x	x	
e-Agenda							x	x					

e-services						x						x	
intelligence	x									x			
DIRC	x	x									x		
City Map Viewer										x	x	x	
silo	x	x		x		x			x				
organogram	x		x			x	x		x		x		X
Outlook						x		x		x			X
WhatsApp			x				x		x				
Search	x	x	x	x	x	x	x	x	x	x	x	x	X
MySite								x					
Employee Wellness		x							x				
browser									x				X
CRM						x							

From the distribution of responses recorded in the keyword matrix, a number of trends can be noted.

The keyword 'search' is a focal point of all discussions with the interviewees. Since the term 'search' is included as a set interview question, this is an expected result. Despite this, it is clear from the interviews that the search function was the single most problematic aspect of the intranet site.

The keyword 'Enform' was cited in 12 of the 13 (92.31%) participants' discussions, indicating that this intranet service is a key point of reference for intranet users. The Enform is a news feed comprising staff notices on the intranet landing page that is updated regularly.

The keyword 'Covid-19' featured in 10 of the 13 (76.92%) participants' discussions, with consensus that the extraordinary working arrangements put in place as a result of the Covid-19 pandemic and associated lockdown was the main driver of change for remote or online work.

Key tools used for online collaboration include Skype and team sites, with 12 (92.31%) and 11 out of 13 (84.62%) participants, respectively, indicating these as their tools of preference.

Other key intranet services included the SAP Portal, the HR website, the corporate organogram, City Forms, policies and City Phone, with 10 (76.92%), 8 (61.54%), 7 (53.85%), 8 (61.54%), 11 (84.62%) and 6 (46.15%) participants, respectively, confirming their agreement that these are key services.

References to 'Google' and 'Internet' or 'WWW' form a significant focal point for comparing intranet performance, with participants indicating that the intranet should aim to more closely emulate these services, especially in terms of search

and navigation functionality. The poor search results and lack of fuzzy logic were cited as notable issues needing attention.

The keyword 'Contact' featured in 6 participants' interviews, in reference to the Contact magazine print publication that is issued to staff on a quarterly basis and featured prominently in their views of organizational culture. The magazine is viewed as a model for promoting corporate culture, in contrast to the intranet's limited offering.

The keywords 'interactive' and 'intuitive' were the most commonly occurring words that the interviewees used to describe what aspects of the corporate internet needed to be improved, excluding 'search' and 'navigation'.

Collaboration tools indicated by the keywords 'Body of Knowledge', 'Innovation Hub' and 'DIRC' were seldom cited by interviewees, suggesting that these tools are not being sufficiently promoted via the intranet.

4.2.4 Key indicators

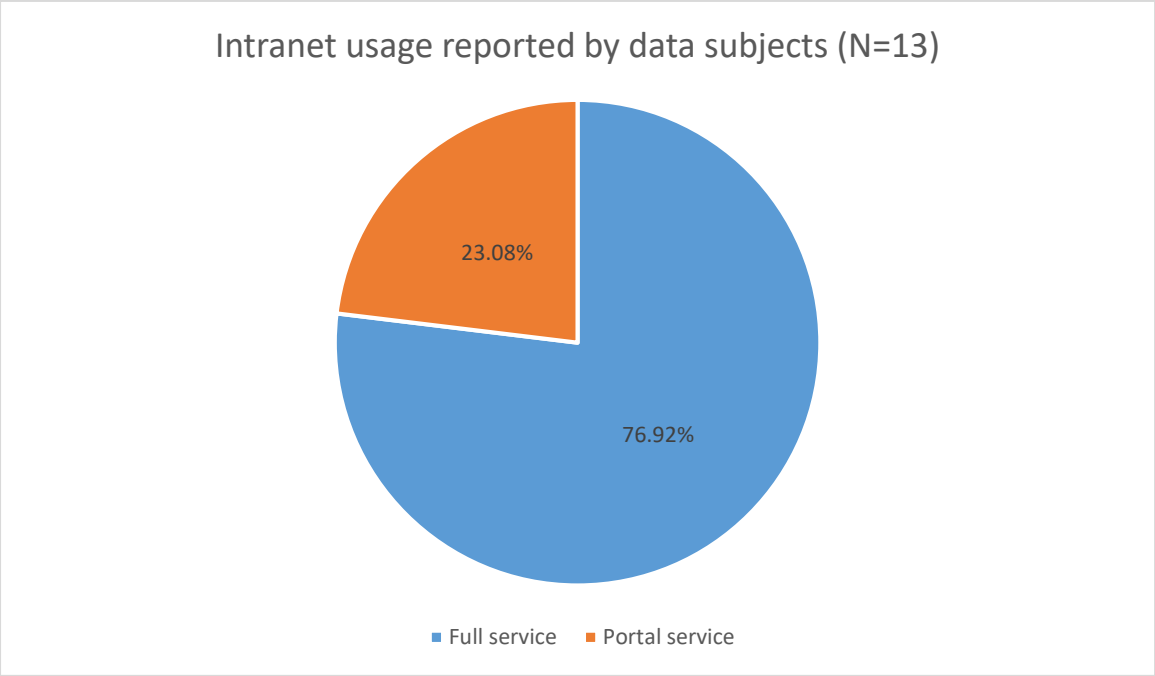
A matrix of keywords and topics was compiled from the interview transcripts to reflect the key emergent topics and areas of interest, in response to the set questions and associated discussion. These identified topics were expanded to explore the research participants' insights.

The key indicators that emerged during the interview discussions include the following:

1. Intranet usage reported by data subjects
2. Key intranet tools by department
3. The effectiveness of the corporate intranet as a collaboration tool
4. Key collaboration services
5. Desirability of social media integration and governance
6. View of the corporate intranet as a vehicle for corporate culture
7. Main areas requiring improvement on the existing intranet platform.

The key areas of discussion that emerged from the interviews indicated the current perception of the state of the City of Cape Town's corporate intranet service and what improvements should be made to improve the service offering. By collating the participants' responses to these key indicators, trends were extracted to guide the researcher to formulate a coherent response to the research questions; to develop an action plan for iteratively improving the functionality of the intranet service; and, based upon the emerging data trends, to formulate a theory that is more generally applicable to intranet design and which can inform future research in the field.

Figure 4 6 – Intranet usage reported by data subjects



In Figure 4.6, most participants (76.92%) report using the full service offering of the corporate intranet, while some participants (23.08%) report using the intranet mainly as a portal to access a few specific functions. The participants who used the intranet as a portal were all members of the Information Systems and Technology Department and reported that they were able to perform their work duties via backend systems without needing to use the intranet to access these services.

Figure 4 7 – Key intranet tools by department

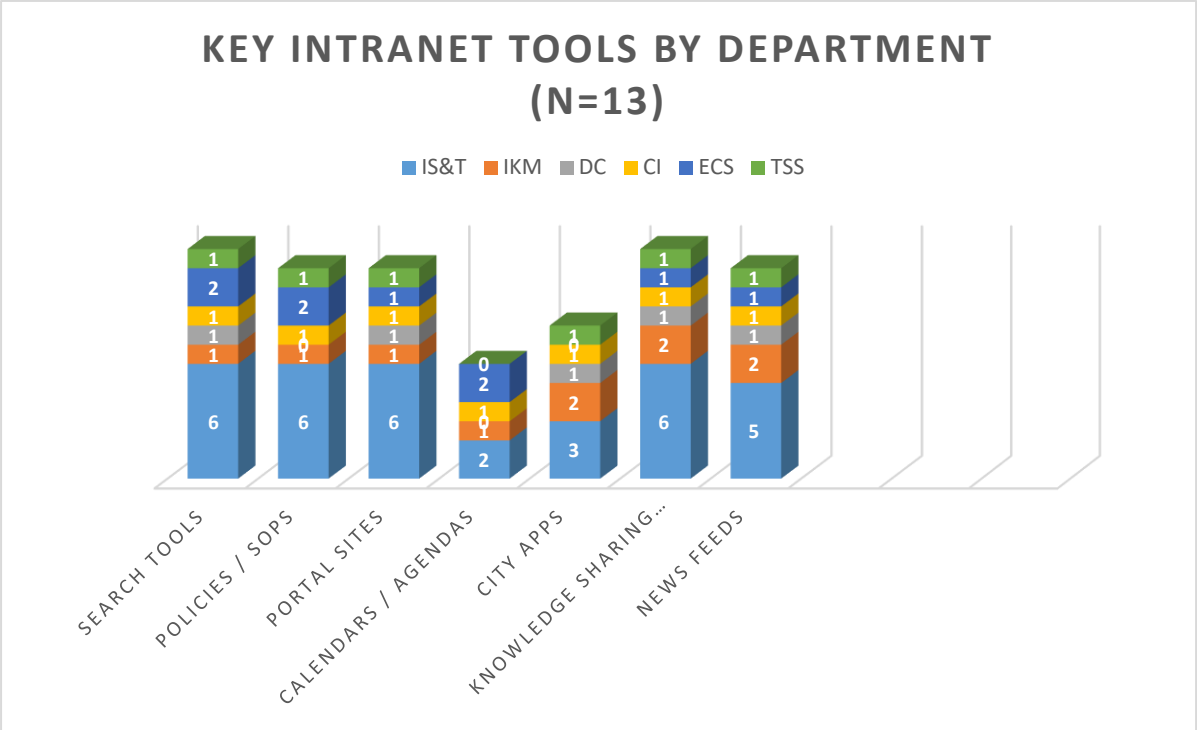
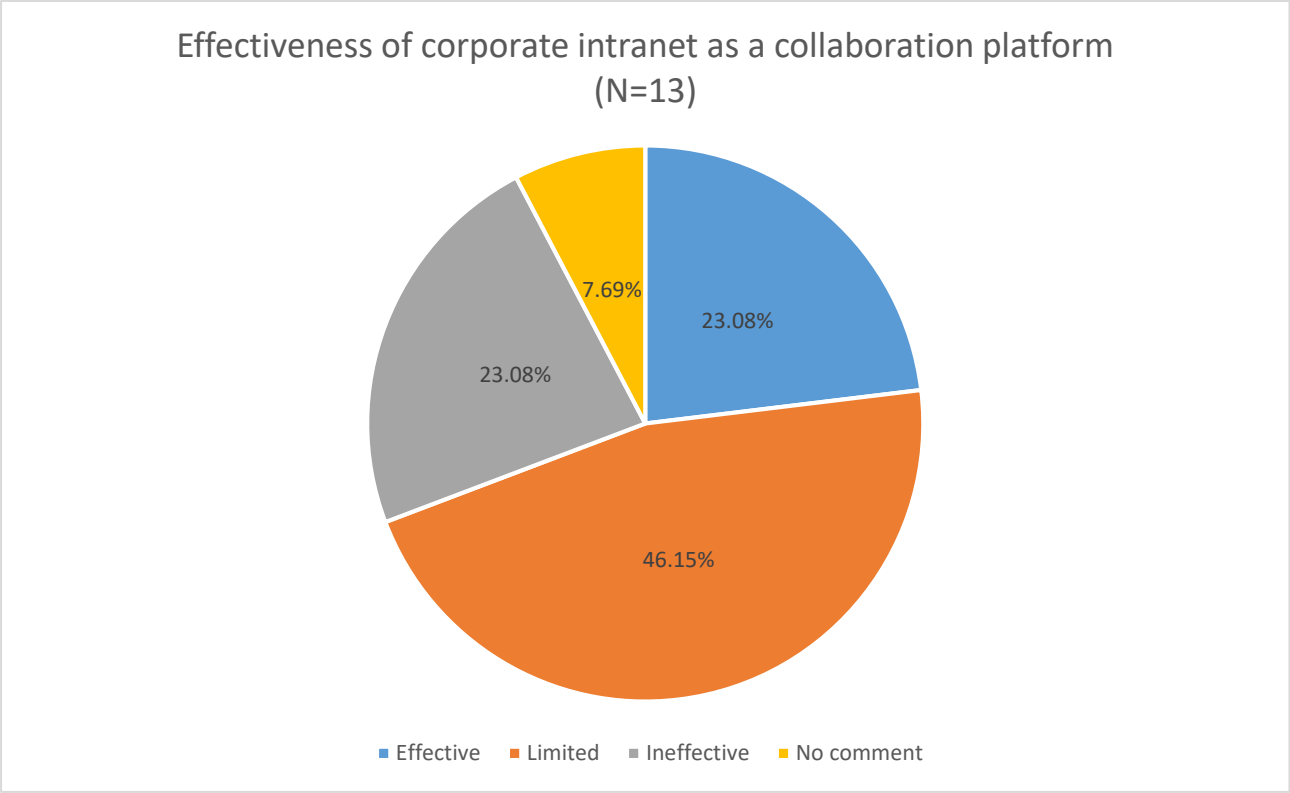


Figure 4.7 provides a breakdown of various categories of intranet tools and services which the research participants regarded as most relevant. The categories aggregate a number of commonly used apps, portals, intranet services and content sites, as shown below:

- **Search tools**: Search bar, site navigation, corporate organogram, CityPhone directory
- **Policies / SOPs**: Policy, by-law and process documentation
- **Portal sites**: Supply Chain Management site, HR site, Tender Portal, SAP Portal, Councillors Online, Career Portal
- **Calendars / agendas**: Council calendar, Outlook calendar, e-Agenda app. Council agendas
- **City apps**: Various business applications including City Forms, City Map Viewer
- **Knowledge sharing apps**: Various KM applications including DIRC, Innovation Hub, Open Data Portal, Team sites, Body of Knowledge, Transport Connect
- **News feeds**: Primarily refers to the Enform news feed that features on the intranet landing page, and includes an archive of older news posts

Figure 4 8 – Effectiveness of corporate intranet as a collaboration platform



In Figure 4.8, a breakdown is given of the research participants' views regarding the effectiveness of the corporate intranet as a collaboration platform. Only 23.08% of the participants regarded the intranet site as serving as an effective collaboration platform, with the majority of the participants noting that the intranet does not offer sufficient tools for effective collaboration. Some of the participants further noted that most of the collaboration tools that are available are not integrated and operate independently of the intranet platform.

Figure 4 9 – Key collaboration services

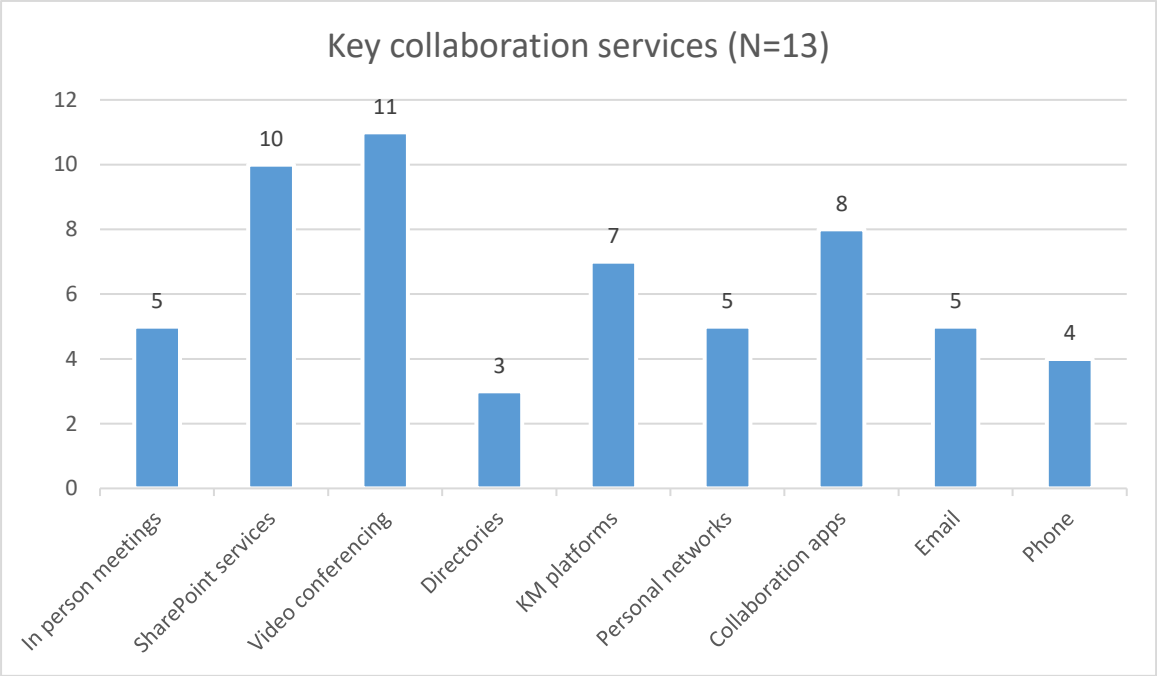
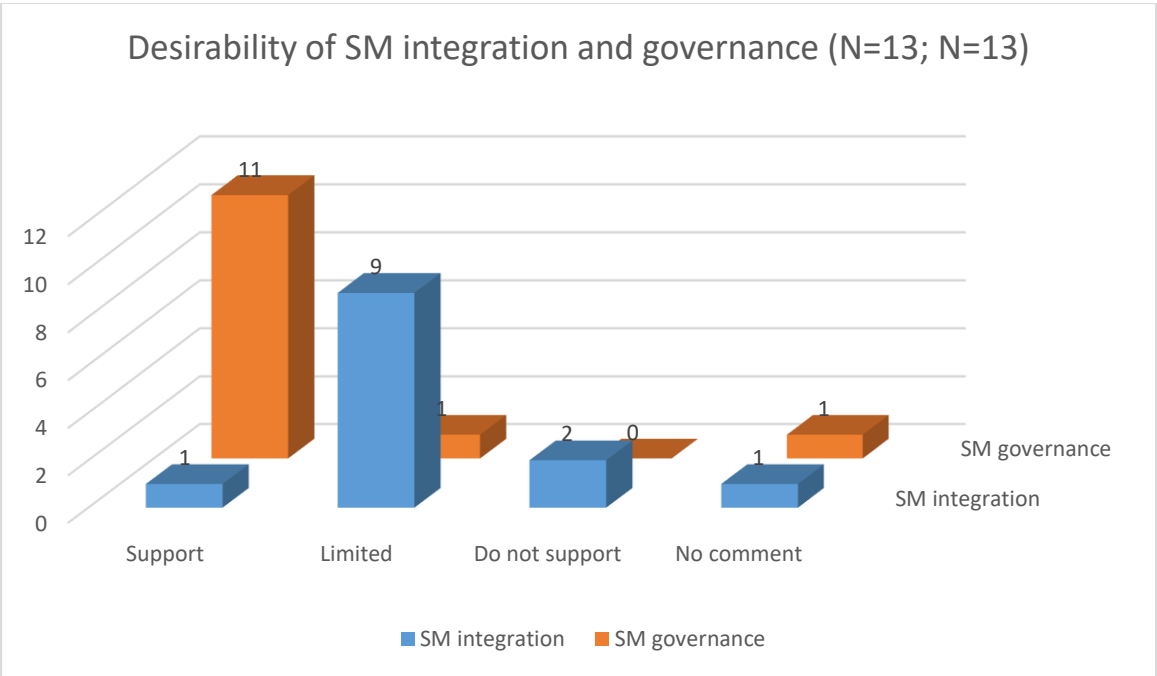


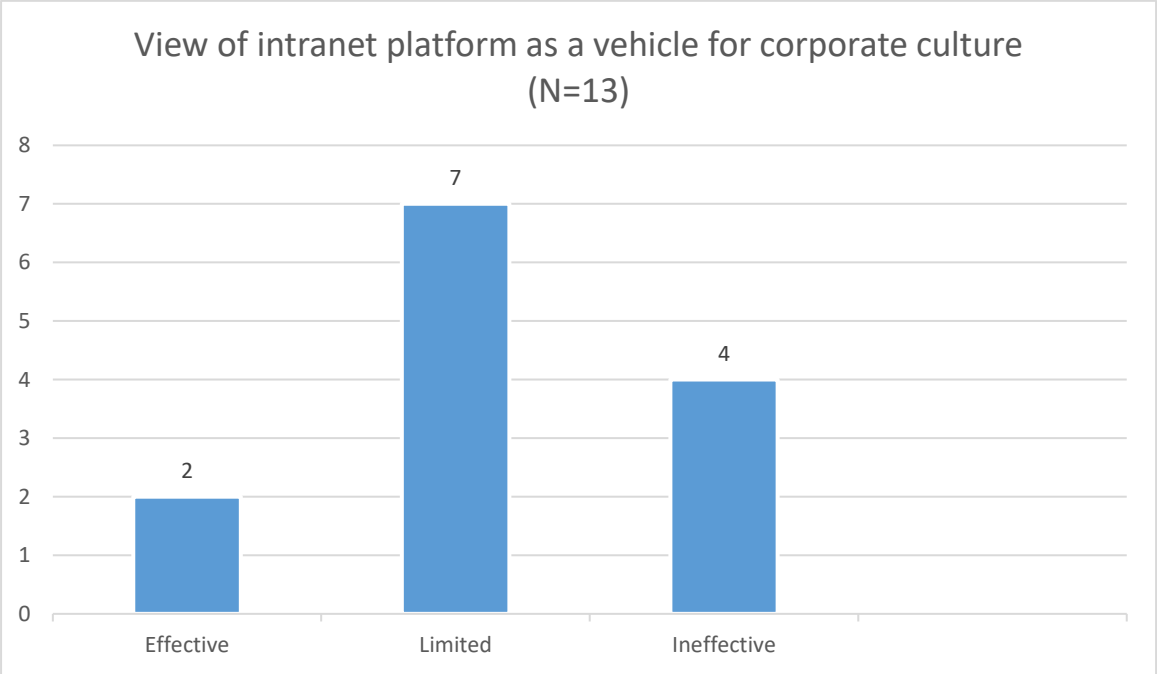
Figure 4.9 shows the main channels that participants use to collaborate when performing their work duties. Video conferencing features as the most commonly cited collaboration tool. The Covid-19 pandemic and the ensuing lockdown has been a major driver of change in promoting online collaboration within the organization. The persistence of offline collaboration channels, as represented by in-person meetings, personal networks and phones demonstrates that participants still depend on these forms of engagement when collaborating.

Figure 4 10 – Desirability of SM integration and governance



As Figure 4.10 indicates, discussion around social media and its applicability for the intranet platform proved to be a contentious issue for most participants, with the majority arguing for limited access and strong governance and usage policies to mitigate reputational risk to the organization, and to prevent misuse by staff. Most participants acknowledged the usefulness of social media for staying informed, and suggested that a limited news feed from official City of Cape Town Twitter and Facebook accounts would best serve the organization's needs. Access to YouTube was an area of particular contention, as several participants noted that limiting access to YouTube was at times too restrictive and prevented them from accessing useful online content, including some of the City's own video content.

Figure 4 11 – View of intranet platform as a vehicle of corporate culture



Regarding the corporate intranet's content offering in terms of corporate culture, most participants (84.62%) regarded the platform as either of limited effectiveness, or as quite ineffective at promoting or communicating the City's corporate culture. A primary concern that was noted was the top-down push communication approach, which represents mainly the interests of management.

Several participants praised the inclusion of campaigns that focussed on promoting staff interests such as employee wellness, Covid-19 information sharing, SharePoint Tips, cybersecurity, and lifestyle content. In particular, almost half of the participants (46.15%) cited the quarterly Contact magazine as an example of content that is both promotes corporate culture and remains inclusive of all parts of the organization.

Table 4.2 Top CCT intranet Covid-19 pages for 1 January – 30 June 2021

Rank	Page URL	Page views
1	/pages/default.aspx	12 471
2	/videos/citytalk-vaccine-ep-10.mp4	4 644
3	/videos/covid-19vaccinejourney.mp4	3 333
4	/pages/city-talk-10.aspx	2 683
5	/videos/citytalk-ep-11.mp4	1 947
6	/documents	1 457
7	/documents/covid 19 post vacation rtw risk assesment tool - fillable.pdf	1 394
8	/pages/resources.aspx	1 207
9	/pages/covid-19-vaccine-faqs.aspx	1 202
10	/misc/covid-qa6.htm	1 042
11	/documents/directive compensation for workplace covid19 - cf062020.pdf	977
12	/documents/covid-19 vaccination guidelines for employees during phase 2.pdf	961
13	/documents/back to work plan.pdf	932
14	/documents/covid-19 guidelines for quarantine and isolation.pdf	740
15	/pages/directives.aspx	712
16	/videos/covid-19-tshif motivation.mp4	661
17	/_layouts/xlviewer.aspx?...	629
18	/documents/covid-19 guidelines for the screening monitoring and management of employees v3.pdf	573
19	/_layouts/dynamicimageprovider.aspx	531
20	/documents/covid-19-symptom monitoring tool.pdf	528

Figure 4.11 shows the SharePoint analytics report for Covid-19 intranet pages that were visited most frequently over the period 1 January – 30 June 2021 (Top 20).

Overall, the Covid-19 pages featured in the top 20 intranet sites visited during the period 1 January 2021 – 30 June 2021, as follows:

- January 2021: 7th (7 262 page views)
- February 2021: 11th (7 067 page views)
- March 2021: 13th (5 595 page views)
- April 2021: 7th (10 053 page views)
- May 2021: 14th (5 091 page views)
- June 2021: 10th (7 757 page views)

Covid-19 content was also issued via the Enform staff newsletter during this period, which ranked 3rd consistently during the same period but no data can be extracted regarding the open rates.

Table 4.3 – Main areas requiring improvement

Main areas requiring improvement on the existing intranet platform	**Participant code**	**Narrative notes**
Search, search results, navigation, data analytics, site structure, metadata, grouping / classification of information, user feedback, break down silo approach to KM	2B	Participant avoids using search, based upon past experiences. Feels that site design and structure needs to be more intuitive. Google cited as a key benchmark. Silo approach to KM needs to be dismantled.
Design, search, document search, workflows, navigation, legacy technology, forum / chat, mobile integration, social media integration, content management	2A	Intranet needs to be more interactive. Too much one-way communication
Search, content management, application centre	1C	Only include apps that are relevant to the user base, not to a minority.
Search, search results, navigation, visual design elements, content management, software integration, silo approach, site structure, content ownership, access to social media video content, access via devices	2H	City Connect cited as an example of good information structuring that makes use of visual elements to provide a more intuitive experience.

Site navigation, design, site structure, analytics, old deisgn and technology, search, two-way communication / staff voice, access via devices, ease of access, content management	1A	Notes the lack of intuitive design elements, and disorganized structure. User needs to be able to access information easily, and with a minimum of clicking. Lack of analytics is a major issue as site cannot be optimised according to user behaviour. Intranet platform should be a central point for finding information. Need to showcase staff more, like Contact does.
Site design, old technology, visual elements, organogram, knowledge transfer	2D	Notes that the landing page and site navigation is cluttered. Site design is not innovative, and is outdated. Knowledge transfer at retirement or on leaving needs to be improved.
Search, content management, site design, old technology,	2F	Notes that content updates can be slow, and editing policy of content can be problematic. Intranet is outdated - compared to banking sites which offer interactive, modern design.
Search, content management, navigation, site structure, latency, browser incompatibility	2G	Navigation labels unclear, HR site structure not intuitive, documents difficult to locate, latency with load times
Search, old technology, user interface, navigation, design, content management, latency, analytics	2E	Search results are disorganized. Intranet site is too content heavy, static, unintuitive.
Search, search results, design, old technology, user interface, analytics, team sites, visual elements,	1D	Static design needs to be made more interactive, Apps need to be integrated into a streamlined user interface, intranet needs a fresh look
Search, old technology, content management, metadata, more	1B	More lifestyle content is needed, not only work-related content. Information should be structured by

inclusive approach, site structure, visual elements		theme or department. Site needs to be more people-centric.
Search, design, visual elements, lifestyle content, document and content versioning, user feedback, navigation, content management, site structure	1E	Intranet site is not interactive, and is too content heavy. Needs to incorporate lifestyle content including events. Also service notices. Updates need to be indicated. Navigation is vague and needs to be more intuitive.
Search, navigation, design, site structure, transactional functionality, information sharing, lifestyle content	2C	Intranet needs to provide guidance on processes and tasks, as well as make accessing information easier. Simple tasks like booking a venue or locating documents are difficult. Need to include awards, promotions, wellness content.

The table above summarizes the study participants' views in respect of the main areas in need of improvement based on their user experience of the existing CCT intranet service. The data was extracted from the interviews with participants and coded to identify key categories, as shown in column 1. The participants' reference code is given in column 2, and the researcher's remarks are included in column 3.

4.3 Summary

This chapter presented the research data that was collected via semi-structured interviews. The importance of relating the data to theory was emphasised, as a means of organizing the results into a coherent interpretation. The data analysis approach applied was discussed, and three relevant aspects were identified, namely, 'language-oriented'; 'descriptive/interpretive' and 'theory building'. The data sources of the study were presented, including interpretations of the data demographics. By applying a keyword matrix to the interview transcripts, key themes were identified as significant to the interpretation of the data. In addition, by applying narrative analysis to the transcripts and comparing the results to the researcher's annotations, a set of key indicators were identified that further aided in categorising and segmenting the data.

5. Findings, recommendations and conclusion

5.1 Introduction

This study examined the City of Cape Town (CCT) municipality's corporate intranet and its role as a Knowledge Management (KM) tool within the organization. As a team member of the department responsible for the CCT intranet, the researcher was well positioned to assess the existing service offering and to identify key areas for improvement, in consultation with research participants from various departments who offered their insights via a series of semi-structured interviews. An overview of the interview data was presented in Chapter 4 and forms the basis of the findings and recommendations.

In considering the study's findings, a theory of intranet design is proposed based on the learnings acquired by interrogating the data, reflecting on relevant personal experiences and applying these insights. The application of Grounded Theory to the data aims to allow for "the discovery of theory from data" (Glaser & Strauss, 1967:1). The theory that emerges from this approach is grounded in data systematically obtained from social research and supported by in situ reflection, or what Pierce (1965:90) terms "retroduciton" or "studying the facts and devising a theory to explain them." In combination with Action Research, the emerging theory can be validated and refined using an action-inquiry cycle (Lewin, 1946:37-38).

The participants have been anonymised in accordance with the research study requirements and a reference code has been applied to allow for citation from the interview transcripts. Full transcripts are available as a virtual Appendix B, hosted in a Research Data Management environment at https://figshare.com/s/c69fb9b9172f54bcd138 or DOI: 10.25375/uct.22041137 (when approved for publication). Interviewees are coded by number (1 or 2) indicating their designation as either round 1 or round 2 interviewees, and letter (A – G). Refer to Table 4.3 for further detail.

In addressing the sub-questions set in Chapter 1 (Section 1.3), the following is noted.

1. How is the CCT intranet currently structured?

The current intranet service (CityWeb) has been in use for well over a decade, and has retained the same site structure and design since its deployment. As one participant notes, "I was with the City in 2006 and when I returned to the City in 2017, the layout and design of the intranet stayed the same" (B:11). The resulting interface is built on dated technology, and has not incorporated modern design

elements or functionality (B:27;37) or implemented industry best practices (B:105). While this static approach does allow staff to work within a familiar environment, the service is not optimised and functionality is restricted.

The structuring of information on the CCT intranet's front-end landing page is viewed as generally problematic, with participants describing it as disorganized, vague and unintuitive (B:2;84;115). Table 4.3 indicates that the keywords "navigation" and "search" are key areas flagged for improvement. In reference to the left-hand navigation pane, one participant noted that "It is quite random. You don't know what some of those left-hand navigation phrases actually refer to" (B:2). Most participants (76.92%) cited the site navigation (including visual elements) as in need of urgent overhaul (Table 4.3).

2. What challenges can be identified?

Per the detailed discussion presented in section 5.4 below, and supported by the data presented in Chapter 4, the following areas were identified as posing challenges to the CCT intranet user community:

- Poor site search performance
- Inconsistent content management practices
- Lack of data analytics to inform intranet site management
- Limited collaboration tools
- Restrictive organizational culture that inhibits the use of the intranet service
- Lack of social media integration
- Generally poor intranet site governance

3. What are the main needs of the user community?

The study participants listed the CCT intranet's areas in need of improvement in their interview sessions, and a summary of their main suggestions is presented in Table 4.3. The key areas marked for improvement included:

- Intranet site search, including document search functionality
- Site navigation
- Data analytics
- Redesign of site look and feel
- Effective use of metadata
- Content management including intranet site governance
- Eliminating silos and improving knowledge sharing across the organization
- Upgrading and modernizing platform technology
- Improved knowledge sharing tools
- Reducing silo approach within the organization

4. Which improvements should be prioritized?

In assessing which aspects of the CCT intranet would provide the greatest improvement for users, the data collected from the participants' interviews and summarized in Chapter 4 was used to decide which improvements should be prioritized.

From the emergent data, it is clear that the single most important improvement that can be made to the intranet service is to provide a more effective search function. In Table 4.2, it can be seen that the keyword "search" was cited by all of the participants, and each participant highlighted the CCT intranet's search functionality as a key problem area during their individual interview sessions. The improvement of the search function incorporates the associated elements of site navigation, as well as effective implementation of metadata through which search operates. Refer to section 5.4.1 for a detailed discussion of these aspects.

An additional improvement that should receive priority is an improved user interface. By redesigning the navigation elements to be more intuitive, the user experience can be greatly improved. Likewise, incorporating more visual design elements and moving away from a text-heavy page layout will also enhance usability (B:37).

Section 5.4 provides a detailed discussion of other areas in need of improvement, and a comprehensive list of recommended improvements is given in section 5.6.

5. What factors limit the effective implementation of intranet best practices?

The primary factor that limited the effective implementation of improvements to the CCT intranet platform was the project's failure to proceed beyond planning and design phase due to ongoing delays. It is unclear why such a high-priority project was not given proper resources, or if there was simply a lack of support from the organization's management to see the project through to implementation phase (see 5.2.1 for a discussion on this aspect).

The lack of engagement between the project team and the user community forms a major point of concern, as without ascertaining what the intranet users' needs and expectations are, it will not be possible to deliver an effective upgrade that will be adopted (see 5.2.2 for a discussion on this aspect).

Beyond this, another factor to consider is the challenge posed by software incompatibility between the main SharePoint/SAP deployment (see 5.2.3 for a discussion on this aspect).

5.2 Approach to intranet upgrade project

5.2.1 Development timelines and project resources

According to organization documentation available to the researcher, The CCT intranet redevelopment project was initiated with the drafting and approval of the Project Initiation Document (PID) in September 2018, with a phased approach indicated for the project. The PID noted the expiry of technical support for SharePoint 2010, Windows Server 2008 and MS SQL Server2008 by the end of October 2020. This appeared to be the implicit project delivery deadline. However, no firm dates were set for the project stages and, as at January 2023, the project remains in development.

Based on the researcher's engagement with the project team, it was observed that delays were partly the result of inadequate project planning, which as Flett (2011:92) notes is a common issue faced by organizations. This necessitated the reworking of key decision points and associated project documentation. In addition, dedicated developers were not allocated to work exclusively or continuously on the project resulting in slow progress on key deliverables along the critical path.

Project coordination was led by the Digital Communication manager, who appeared to have a poor working relationship with IS&T staff. In April 2020, the manager resigned and no successor was appointed for over a year, which caused further delay and uncertainty.

Few progress updates were forthcoming during the development period, and project team members worked on individual aspects largely in isolation. Periodic update meetings were led by the project manager and several meetings merely repeated previous status updates with no apparent progress. Project team members noted that the use cases were being drafted ad hoc and contained ambiguous or incomprehensible instructions. In addition, the development environment was plagued with technical glitches which either delayed user testing or produced inconclusive results.

5.2.2 User consultation

During the intranet upgrade planning phase, the business owner, in consultation with the IS&T Department, drafted the project initiation document (PID) and the associated technical specifications detailing the planned improvements to the CCT intranet. These specifications, while nominally useful, were drafted without consulting the intranet user base (B:48). Alalwan & Weistroffer (2012:449) note

that this approach to enterprise content management is relatively common across organizations, and is likely to yield a less than desirable final product.

It is hoped that the findings presented in this study may guide the development team in their implementation of the new intranet and ensure a more user-centric design. The business owner and development team are further encouraged to engage with the user base on an ongoing basis via focus groups, user testing, individual and departmental feedback channels to iteratively improve the service and ensure that the intranet offering aligns with user needs as well as with larger organizational requirements.

5.2.3 Product selection and maintenance

When planning for the CCT intranet upgrade, the business owner and technical advisers only considered upgrading the existing SharePoint platform without conducting a thorough comparison with other hosting services. This decision was justified by the fact that the IS&T Department is heavily invested in its Microsoft-based software products and employs a large complement of specialised technical support staff. This effectively locks the municipality into a single platform, which may not provide the best intranet solution going forward.

SharePoint is considered a reliable enterprise content management platform (Woodgate, 2012:1; Hillier & Pattison, 2013:146). However, some of the challenges associated with its deployment include its complexity (Hill, 2010; Prabhakar, 2012:5). While correct configuration can provide a well-functioning service (Alvarez et al., 2017:6), incorrect deployment will result in poor performance.

While SharePoint integrates well with other Microsoft products (Sultan, 2013:163), integration with non-Microsoft products can pose major technical challenges. In the case of the CCT SharePoint/SAP deployment, the two systems do not interface well via the custom solution, with SAP user profiles and SharePoint's Active Directory not aligning. This has proven to be an ongoing technical challenge, and no solution has been put forward to improve interoperability via the redevelopment project.

An additional consideration is the product upgrade cycle. SharePoint is frequently updated and upgraded, which can lead to compatibility issues and require additional resources to maintain. In the past, the IS&T Department has been slow to migrate to newer SharePoint technology due to cost and complexity (B:59), and this has curtailed modernisation of the intranet platform.

5.3 Participant demographics

As noted in the previous chapter, the largest segment of the study's research participants (46.15%) comprises IS&T Department staff (Figure 4.2). This weighting of approved research participants put forward by the City of Cape Town's Research Office suggests that the intranet service is regarded as a function of the IS&T Department. When considering the intranet service, the organization tends to view it mainly in terms of infrastructure and network performance, rather than from a KM perspective.

The participant demographic analysis offered further insight into the corporate culture and associated workplace behaviours. It is clear from the participants' referral trend that the organization tends to operate in silos (Figure 4.3). A clear majority (72.73%) of round 2 referrals were to colleagues within the same department. While this may be attributed to the referrer's close working relationship with their colleagues within their own department, it is highly likely that the behaviour is driven by structural pressure. However, it is acknowledged that the small sample size of the present study does not allow definitive conclusions to be drawn in this regard, and further research is required.

Of equal interest was the participants' highly skewed gender referral ratio (Figure 4.4). In addition to adhering to departmental barriers, it appears that a silo effect may also apply along gender lines, with 81.82% of referrals conforming accordingly. While it is difficult to interpret this effect given the small sample size and due to the fact that gender was not a focus of the study, this tendency stood out clearly.

A final insight is evident in the weighting of senior (or management) staff versus non-management staff. Considering that the City of Cape Town's staff complement is around 26 000 employees, of which only around 1 000 (i.e. 4% of the total staff complement) comprises management, it is significant to note that 54% of the study participants were drawn from management, who exert a controlling influence over the intranet content and management. This finding is reflected in the participants' view that the intranet mainly represents the interests of management (B:7).

5.4 Discussion of findings

5.4.1 Search

The site search function was identified as a key element in need of attention. All participants cited the intranet's search functionality as the most problematic element overall (Table 4.3). This included the search bar, organogram, CityPhone directory, and site navigation. One participant noted that search "does not give the results that I'm looking for" (B:60) and that navigation was "based on knowing where to find things rather than it being intuitive" (B:60). Despite the challenges,

these search tools also ranked highly as essential intranet tools (Figure 4.7) suggesting an urgent need to improve the service.

Some participants cited Google search as a benchmark service (B:3;61) against which the CCT intranet was to be compared. While it would be unrealistic to expect the CCT intranet's search function to deliver the same quality of service as Google's proprietary search algorithm, several of its principles could be usefully applied to enable more relevant results. For example, incorporating fuzzy logic into the search process would ensure that commonly misspelled terms or alternative descriptions are picked up by search. Applying a search ranking boost to popular or priority site content would also ensure that the intranet search query returns more useful and relevant results.

The CCT intranet site appears to have developed organically without a clear, scalable design plan. This has resulted in a sprawling, disorganized site structure that does not connect the various subsites logically or intuitively. The back-end management of metadata was identified as a major area requiring improvement, and is regarded as the main reason that the search tools do not yield useful search results (B:91). Few of the data assets include detailed metadata, and many have not been assigned relevant keywords to aid in retrieval (B:11). The result is a poorly performing information retrieval service that relies upon the user's site knowledge to locate the information that they seek (B:60).

5.4.2 Content management

The organization of information, both on the published front-end pages and the back-end repository, is not optimised. Chua and Lam (2005:14) note that "content which is out-dated, irrelevant, ill-structured or has inadequate coverage can often be the cause of KM failure". The research participants generally regarded the site page content as being "text-heavy" (B:130), "dense" (B:2;8) or "static" (B:42). One participant commented that "The entire City intranet is just a dump of words so I think that they should restructure the way they are giving information" (B:41).

Rather than providing long-form static content, site pages should incorporate more interactive elements to engage the user. The information should also be structured in a way that is more user-friendly. These changes may include links to popular content sections, process documents or reports; as well as providing access to knowledge sharing portals using intuitive site navigation. More visual elements in the site design will aid in guiding users to relevant information and improve access to site resources.

The Application Centre page hosts a number of apps but many are of limited interest to most users. One participant noted that some apps have a user base of

"10 or 15 or 20 people" (B:20). It is recommended that the applications be audited to determine which can be removed from general circulation.

Content workflows were also flagged as problematic (B:17), making content approval processes unclear. This creates a risk that content may be published to the intranet without being vetted. It is recommended that the workflow approval process be reviewed and corrected in order to ensure that the data assets are duly vetted before appearing on the intranet site.

5.4.3 Data analytics

The CCT intranet site includes very limited analytics tools for assessing how the site is accessed by the user base (B:2). As a result, the custodian department has had difficulty in measuring the effectiveness of the intranet service in meeting the needs of its user base and achieving business goals. There was also a lack of insight into which features or pages were being used most frequently, making it difficult to prioritise updates. Likewise, without detailed data analytics, it was difficult to identify and address issues related to site navigation, content or design that may be causing frustration for users.

The lack of usable analytics has also made it impossible to make data-driven decisions about the intranet's design and content, and improvements were therefore made in response to very limited anecdotal feedback from users, or on instruction from management. It is recommended that a full suite of data analytics tools be included in the intranet redevelopment project to allow for data-driven assessment and improvement of the CCT intranet site.

5.4.4 Collaboration

Most participants indicated that the intranet service offered only limited collaboration functionality (46.15%) or was ineffective as a collaboration platform (23.08%). The CCT intranet has historically offered only limited collaboration functionality to the organization, with most organizational units opting for in-person meetings and email as their primary means of collaborating (B:114). While some online collaboration channels such as Skype for Business were available to staff, in the researcher's experience the use of these channels tended to be restricted to one-on-one consultations or small team meetings.

The Covid-19 pandemic and ensuing lockdown effected a radical shift in collaborative engagements as staff were required to work remotely (B:114). The main collaboration services that were used by the participants included video conferencing (84.62%), SharePoint services (76.92%) and collaboration apps (61.54%). The existing Skype for Business platform rapidly became the primary internal collaboration tool (B:5). The Zoom and MS Teams platforms were also

used as collaboration tools to a lesser extent, mainly for engagements with external clients.

Most participants regarded the shift to online collaboration as a very positive development. However, some participants noted that this also came with some disadvantages. One participant noted that remote working increased the response time when interacting with colleagues (B:106). Another noted that online meetings tended to stifle interpersonal engagements, and limited robust discussion (B:5). It is clear from these comments that not all work functions can be conducted remotely. Meetings requiring multiple inputs or rapid response, for example, should be conducted in person rather than online.

The SharePoint Teamsites platform had been used as a shared document repository both before and after the Covid-19 pandemic by the majority (84.62%) of participants (Table 4.1). However, due to concerns about data security and overstepping data confidentiality restrictions, most participants indicated that they limited their sharing of the Teamsite content to immediate team members only (B:65-66). Occasionally, participants indicated that they used the Teamsite to share specific documents with staff in other departments or, very infrequently, with external collaborators.

In addition to concerns about data security, some of the participants (38.46%) raised concerns about the organization's tendency to operate in silos (Table 4.1). This concern was supported by the participants' use of Teamsites and of other collaboration tools to communicate mainly or exclusively with colleagues within their department or directorate.

The CCT intranet included several other purpose-built collaboration apps and platforms such as the Development Information Resource Centre (DIRC), the Innovation Hub, the Body of Knowledge (BOK) and Open Data Portal. However, most participants either did not know what these resources were or had heard of them only in passing. It is recommended that the collaboration resources be promoted to raise awareness of their availability, and to incorporate the collaboration platforms in business processes as key KM tools.

5.4.5 Organizational culture

The role of corporate culture and the people within an organization has come to be regarded as key factors in ensuring a successful KM implementation (Tsui, 2005:3). Roberts (1998:201) similarly observes that "knowledge resides in and with individual people, the firm merely integrates the individually owned knowledge by providing structural arrangements of coordination and cooperation."

A top-down approach to information management (B:7) limits this potential and information tends to flow in one direction, with few opportunities for staff to

provide feedback. While the information that is accessible via the intranet was regarded as generally useful (B:129), there was little sense of ownership or inclusion.

The tendency for departments to operate in silos was also flagged as a major challenge. Some participants indicated that a 'culture of secrecy' regarding the sharing of information has led staff to limit the sharing of documents outside of their teams (B:66). As a result, potentially valuable knowledge resources were not accessible to others in the organization, leading to duplication of effort elsewhere or gaps in available data. In both instances, there was a cost to the organization which could be remedied by (a) clarifying what information is sensitive; (b) applying appropriate confidentiality levels to sensitive information; (c) making departmental information resources accessible to other departments via a portal service or in relevant knowledge sharing sites.

Several participants indicated the need for shared content that focussed on social aspects of organizational culture, in addition to business or organizational content (B:12;92). Campaigns that were identified as positive examples of this approach included the Employee Wellness newsletter; the Contact magazine; the Cybersecurity newsletter; communications related to the POPI Act; Covid-19 information sharing; staff sporting activities, and various HR campaigns (B:12;93). In particular, several of the participants (46%) singled out the Contact magazine as an example of how to promote organizational culture effectively, with one noting: "something that helps me a lot with knowledge sharing or finding out who's who is Contact" (B:22).

Participants felt that these communications reflected an interest in their personal wellbeing beyond their role as an employee, and viewed them as an important mechanism for promoting morale (B:96). In addition to being regarded as employees, participants regarded it as important also to be recognised as people with their own stories and personalities.

5.4.6 Social media integration

Many participants were generally supportive of social media as a service that could enrich engagement and aid in knowledge sharing. However, their position on its integration with the CCT intranet was largely cautious. Only one participant supported the use of a full, unrestricted social media service. Of the remainder, 15.38% viewed social media as posing too much of a risk to warrant its inclusion (B:6;31) and 69.23% supported limited or restricted access – typically as a news feed which did not allow users to engage directly (B:6). One participant cited reputational risk due to misuse as a key factor in restricting access (B:6). Another participant similarly commented that staff "would spend more time on social media than working" (B:31).

One participant noted that social media access would need to be reassessed in light of the fact that younger generations regard it as an essential service (B:67) and would expect to engage and connect with colleagues via social media channels. There was thus a clear need for the City to make available a social media protocol (B:6) and to moderate engagements (B:67). Most participants (84.62%) advocated for some form of governance or oversight to be applied to any social media channels connected with the municipality (Figure 4.10).

The IS&T Department applied access restrictions to the internet for most staff. This policy effectively prevented a large part of the organization from accessing the City's approved social media resources. As a result, staff were unable to access valuable information resources (B:67) via their workstations.

While some easing of this restriction was applied in response to the Covid-19 lockdown – notably the broadcasting of Council meetings via YouTube (B:107) – much of the City's digital video content remained inaccessible to most staff (B:122). It is recommended that this policy be reviewed and that City-approved social media resources be whitelisted to give staff viewing access.

5.4 7 Intranet governance

Participants noted that they were duty bound to adhere to policy and process requirements (B:25). As an entity of state, participants made it clear there was a need to follow governance processes to ensure data integrity and confidentiality.

While governance processes in respect of national legislation were well understood and diligently applied within departments, the governance processes for the sharing of information and the management of content on the intranet appeared to be less certain. This lack of guidance at an organizational level was a main driver of the silo culture, as noted previously. The result was that intranet subsites contained generic information that was of limited value. In order to improve the intranet service and make it an effective knowledge sharing platform, it is vital that clear governance and usage policies be applied and supported by the organization's leadership.

By promoting knowledge sharing as an integral part of the organization's way of doing business, the potential for shared learning and supportive business processes has the potential to enhance individual and team productivity, add value to departmental service delivery efforts and greatly enhance the ability to access knowledge resources across the whole organization.

5.5 Developing a theory of intranet design

The research presented in this study, along with the findings set out above, offer insights into the practices and service offerings that a corporate intranet deploys in order to serve as an effective KM tool. By identifying these key elements and applying a Grounded Theory (Glaser & Strauss, 1967:1) approach, a theory for intranet design may be constructed to explain how an intranet should be configured for optimal utility.

While general theoretical principles may be put forward, each use case will also require specific design elements based on individual context. As Coglan and Brannick (2005:7) note, "knowledge created through Action Research is particular, situational and out of praxis." An organization's user requirements and business needs would therefore need to be considered when applying the intranet design theory. Skok and Kalmanovitch similarly (2005:740) stress "the danger of attempting to apply a single solution approach to the intranet" and recommend "multiple channels to facilitate the flow of knowledge" by developing a user platform that allows for a "mix of epistemological orientations."

From the interview data and analysis, eight principles emerged as intrinsic to any intranet design:

- **Principle 1:** An intranet's **information architecture** (IA) should be logically structured and scalable. It is essential to construct the IA using a simple, intuitive and clear site hierarchy that is easy to navigate and that can easily be modified to accommodate organizational growth and change without requiring a reworking of top-level categories (Fischer & Ostwald, 2001:62). Global navigation should provide easy access to the main site pages, including the intranet home page, directory services and other popular content. Page navigation should be organized to provide the user with a clear route to the information they are seeking, and popular or important site content sections should be placed higher up in the navigation panel. The user's route to finding information should also be kept as short as possible. Long and complicated paths to find information are a sign of poor site design and should be simplified.

- **Principle 2: Page design** is a crucial factor in ensuring usability, and needs to be kept clean, uncluttered and simple. Long-form pages containing static information are of little value, especially as top-level pages. Users typically access the intranet to find specific information on a topic or department, access an app or portal, locate a document or connect with colleagues. By prioritising these elements on the site pages via links, clickable graphics and embedded services, the navigation process can be simplified for the user. This principle can be extended to incorporate mobile responsive design, to allow remote users to access intranet services via their mobile device using a secure portal service such as an extranet.

- **Principle 3:** The **search function** is a critically important element of intranet design, and accurate search results will make the intranet service

a powerful KM tool. It is essential that site metadata is well conceived and universally applied to allow for accurate and relevant search results to be returned. Identifying and serving up only the most relevant information requires a sophisticated search and retrieval process in order to meet user expectation and invest value in the data that is being presented (Stenmark, 2005:1).

- **Principle 4: Content management** is a key aspect in determining how well the intranet service functions as a KM tool. The tendency to use the intranet as a repository to dump unstructured data should be avoided. Judicious curation of organizational knowledge that is of greatest business value, and organizing it into knowledge hubs that share best practices, will promote institutional learning, innovation and insight (Dalkir, 2005:3). This principle can be extended to incorporate records management functionality to ensure that digital assets are properly managed, archived and securely disposed of when no longer required.

- **Principle 5: Data analytics** is an essential component of intranet design, as it provides a data-driven means of assessing site performance and identifying areas for improvement (Scott, 1998:11-12). This principle can be extended to include other forms of user feedback. An aspect of iterative improvement should be included as a design feature of any intranet deployment to ensure that the platform is properly maintained.

- **Principle 6: Collaboration tools** are considered an essential element of the modern digital workplace (Scott, 1998:4-5), and need to be integrated into the intranet service to promote effective knowledge sharing. By providing access to video conferencing collaboration tools, as well as organizational knowledge sharing platforms, users are empowered to network and engage with colleagues across departments.

- **Principle 7:** Intranet design needs to incorporate aspects of **organizational culture** when conceptualising the intranet site. Organizations with a top-down management style will struggle to position their intranet platform as an effective KM tool, and should rather consider what Nonaka (1994:30) terms a 'middle-up-down' management style. By promoting "evolving communities of practice," all members of the organization can contribute towards knowledge creation, according to their unique perspective (Nonaka, 1994:23;30).

- **Principle 8: Intranet governance** is an important but largely overlooked aspect of intranet design. While other areas of the organization tend to be highly regulated through process flows, SOPs, policies and guidelines, the intranet tends to be managed as a subset of the IS&T department (Scott, 1998:10-14). Providing clear governance and usage policies will ensure that site content is appropriately structured and optimised to allow users across

the organization to access the various knowledge resources that are contextually appropriate, and not focussed exclusively on IS&T priorities. Defining the requirements for access permission, content metadata and process flows will also promote trust across the organization that will encourage knowledge sharing.

The supporting data (Appendix B; Figure 4.10) and discussion of findings (Section 5.4.6) suggested that, while social media was regarded as an increasingly relevant and important workplace tool, its inclusion in an intranet platform was problematic from both a personal and organizational perspective. Skok and Kalmanovitch (2005:733) also cite the risk of "false knowledge, misinformation, and propaganda in the absence of control." Therefore, this aspect was not included as a design principle. As the organizational work environment changes, this assessment may need to be reviewed.

In conclusion, the principles outlined above represent the interpretation of participant data and the researcher's personal reflections as applied to the research question. The relevant case literature and research in the fields of KM, Action Research and related disciplines provide additional insight and support to the emerging theory of intranet design. The limited scope of this study does not allow for more comprehensive articulation and testing. It is hoped, however, that the framework provided above will be useful for other researchers in the field to compare their findings and contribute further insights to the theoretical underpinnings of intranet design.

5.6 Summary of recommendations

The preceding discussion has attempted to catalogue some of the many aspects of the CCT intranet deployment that have made it both a challenging and a potentially invaluable digital work environment. The intranet design principles cited above provide a clear framework for evaluating and identifying areas for improvement. In brief below is a summary of the key points that can be applied to improve the user experience and enhance the CCT intranet's role as a KM tool.

- The existing CCT intranet platform is in urgent need of modernisation. As a technology, the SharePoint deployment has passed its end-of-life and is no longer supported by Microsoft. It is essential to upgrade the service to ensure data security and to incorporate new functionality.
- The CCT intranet redevelopment project should receive priority during its development cycle. This includes the allocation of dedicated resources to ensure that project milestones and deliverables are met.
- In planning and implementing the project, a thorough assessment of user and business needs should be undertaken, and the findings incorporated into the project documentation.

- Once a solution has been implemented, regular updates and maintenance are essential to ensure that the platform technology continues to perform well.
- As far as possible, the intranet services should be interoperable. Systems that do not function well together should be replaced by compatible systems to minimise technical failure.
- The search functionality (inclusive of search box, search results, site navigation and related apps) was identified as the main area requiring improvement. By improving this aspect, the intranet's value as an information retrieval and knowledge sharing system will be greatly enhanced.
- It is essential that all site content be reviewed to ensure that metadata is complete and correctly configured for use by the search tools.
- Site pages should be reviewed and revised to cut down on generic, long-form content. The page content should prioritise user needs and include visual / interactive elements that make for a more intuitive experience.
- Data analytics tools should be added to the intranet service to provide insight into site usage trends, popular content, entry and exit points. This will allow for data-driven improvement of the service based upon user interactions.
- Collaboration tools need to be promoted within the organization as part of its standard business processes.
- Access permissions should be applied to all site content to ensure data integrity and to manage confidential or sensitive information.
- Organizational culture is a key factor in determining how the intranet platform performs as a knowledge sharing resource. It is therefore important for staff from all levels to be represented via the intranet. In addition to business and process content, other staff interests need to be incorporated. This includes lifestyle, support service, personal and related content that gives recognition to staff as individuals and team members.
- Social media is a contentious service that offers access to rich multimedia content, but which may pose reputational risk if misused. However, increasingly, social media is a part of life and work. By managing how social media can be accessed and implementing clear usage and governance protocols, it may serve a valuable function within the organization.
- Lack of governance and usage guidelines in respect of the intranet poses a challenge to users. By developing an organization-wide usage policy, users and departments will feel more confident using and sharing their knowledge resources.

5.7 Reflections on the research methodology

This study was initially framed as Action Research, since the researcher was part of the CCT intranet redevelopment project and intended to effect change in the process of studying its effects. However, over the course of writing up this dissertation, the lack of progress made by the project team over the course of a four-year period posed a methodological dilemma. During this time, few project

milestones were achieved and the project did not deliver tangible updates that could then be assessed for their effectiveness. The findings presented here represent in part a set of proposed changes that have yet to be implemented and assessed.

5.7.1 The effect of Covid-19 on intranet usage

The onset of the Covid-19 pandemic did, however, permit some aspects of this study to be tested. The organization's response to the Covid-19 pandemic permitted a remarkable opportunity to witness the application of theory in a real-world scenario. Usually restrictive IS&T policies were reviewed and amended to give users access to online knowledge sharing and collaboration services. It also allowed the researcher to develop and publish a new Covid-19 subsite that served as an information portal for the City's user community. By putting some of the insights gained from reflecting on the research into practice in this way, it was possible to assess the effect on knowledge sharing and adoption by the user community.

The Covid-19 subsite was drafted by the researcher in consultation with the City's epidemiologist and the head of Occupational Health Services, as well as with colleagues from the Human Resources department who contributed the necessary work-related administrative forms. The subsite deployment was limited by the constraints of the existing intranet page templates, and therefore retained the familiar look and feel of the main intranet site. However, the intranet design principles that could be applied were used to update the site navigation, content sections and digital resources. In this sense, Tripp's comment that "one does not just understand practice in order to improve it in Action Research, one also gains an improved understanding of routine practice through improving it" (2005:448) was applied to the creation of the new subsite.

The result was a relatively clean subsite that was logically structured and easy to navigate. Page content was kept streamlined, and regular daily updates were made to keep staff informed about all aspects of the pandemic. This included medical information and advice on seeking treatment; guidance on preventative measures; daily and weekly reports on the progress of the disease; vaccination information; an FAQ; and a listing of Covid-19 directives, advisories and media releases. Monthly video content was also created and made accessible to staff. In addition, a weekly Covid-19 staff mailer and a separate Covid-19 mailer for residents was sent via Everlytic mailer to the City's subscriber base.

The response from staff was very positive with many expressing their thanks via internal messaging. Unfortunately, due to limited site analytics data, it is not possible to quantify this aspect in precise detail. However, from the research data, 77% of the participants cited Covid-19 as a driver of change in corporate engagement via the intranet (Table 4.1).

Table 4.2 shows the Covid-19 intranet site content that was accessed by staff over the period 1 January 2021 – 30 April 2021. In total, 52 848 page views were recorded for this period. While no granular detail is available, the Covid-19 site pages did rank consistently in the top 20 pages overall for the same period[3].

The remote working arrangement ushered in by the Covid-19 pandemic marked a turning point in user engagement via the intranet, with staff adapting well to the new digital work environment despite occasional technical challenges (B:106-107). The roll-out of laptops to staff, starting in April 2020, along with remote connectivity 3G dongles and the configuration of VPN services to enable secure network access proceeded smoothly, and previous distrust of the intranet as an effective work environment rapidly dissipated as the organization embraced a new way of working. One participant commented:

> prior to Covid, I think there was always a reluctance and hesitation to even consider work from home because we never had… the faith in the digital environment to allow us to work from home. I think with Covid, we had to make it happen one way or the other and, believe it or not, we did, we made it happen and we collaborated, we worked, we put in place mechanisms and digital processes that we otherwise may not have even considered had Covid not appeared. Or it would have taken forever to implement those changes which we were literally forced to do overnight due to Covid and yet we successfully did it.
>
> (B:106-107)

5.7.2 Closing remarks

Some of the technical improvements cited in the discussion above remain in the development stage. In this sense, unavoidably, this study must close on an inconclusive note. While this is regretted, the study has nevertheless captured much valuable data regarding the state of the existing intranet, given insight into aspects of organizational culture that play a key role in the context of a corporate intranet, and recorded the participants' assessment of the changes that need to be effected to enable a modern digital workplace that will meet user needs.

This latter focus is particularly noteworthy, as the CCT redevelopment project effectively excluded user consultation. This study therefore presents its findings, drawn from interviews with a small sample of the CCT intranet user base, as a vital missing human aspect of the redevelopment project and as a form of intervention. In this sense, the Action Research element has shifted focus to internal process improvements rather than implemented changes. By incorporating these findings in current and future improvements, the intranet service may yet come to provide a relevant and effective platform for knowledge

[3] SharePoint analytics data for the main intranet site was unavailable for 2020.

sharing that will serve its user base and allow the organization as a whole to function more effectively.

It is worth recalling the earlier comment by Tripp (2005:446), who argued that a decision on improvement can be made "on the best evidence that one can produce" rather than exclusively on an exhaustive analysis of the problem, which is often unavailable and unrealistic under the circumstances. This has certainly proven to be the case in the present study. It is in this spirit, then, that the findings, recommendations and emerging theory of intranet design presented here offer a roadmap towards improving the CCT corporate intranet, or what Dalkir (2005:3) terms "actionable knowledge".

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Appendix A: Research instruments

The research instruments that were used to conduct the participant interviews for this study are included below, and incorporate an invitation to participate in the research study; an informed consent form; and an interview guide with a section to record the interviewee's organizational details and a set of standard interview questions. Each participant was sent the set of interview documents and requested to return a signed consent form. Interviews were then arranged with participants who agreed to join the study.

Invitation to participate in the research study.

Invitation to participate in the research study

Topic: An Action Research approach to improving the City of Cape Town corporate intranet

Dear [Participant Name]

I am a postgraduate MPhil (Digital Curation) student in the Department of Knowledge and Information Stewardship at the University of Cape Town currently undertaking research in the above topic. The aim of the research is to identify key areas for improvement that will make the intranet service more useful as a knowledge management tool. Due to the limited scope of the study, a small sample of respondents, including yourself, has been identified for participation via a short, open-ended interview session that will be recorded to capture the participants' views and opinions. This data will be analysed to extract general trends that will be used to inform the research.

Participants have been chosen to reflect a range of views, including superusers responsible for the backend administration of the intranet; users who have provided either positive or negative feedback on issues they experienced when using the intranet; and users who have indicated that they have difficulty with the existing user experience (UX) design.

I hope that you will consider taking part in this research. There is however no obligation to do so and you are free to decline or withdraw at any stage. The informed consent form (attached) provides further detail on the process, and explains how your participation will be treated in the strictest confidentiality. If you have any queries about the research project or your participation, please don't hesitate to get in touch via the contact details below.

If you decide to join in the research as a participant, please return a signed informed consent form to me at the email address below. I will then arrange an interview slot at a mutually convenient time. The interview should take no longer than 15 – 20 minutes.

Thank you for taking the time to consider this invitation.

MPhil (Digital Curation) student
Herbert Gregory Evans
Email: EVNHER001@myuct.ac.za
Cell: 072 890 7078

Informed consent form

Informed Consent Form

With your permission, I would like to record this interview for further analysis. Your
participation is voluntary, and should you wish to withdraw from the study you may do so at
any time. Your responses and any information obtained from the interviews will be treated with the strictest confidentiality. It will not be possible to identify your responses from the information to be included in this study. The data will be used for the purpose of this research study only and the record of individual responses will be erased once the study is complete.

I agree to participate in this interview for the purposes of research.

Signed ……

Thank you for consenting to this interview.

If you wish to ask further questions, please contact me directly:

Herbert Gregory Evans
MPhil (Digital Curation) student
Department of Knowledge and Information Stewardship
University of Cape Town
Email: EVNHER001@myuct.ac.za
Mobile: 072 890 7078

Interview guide

The set questions below serve as a guide to leading discussion with the interview participants. The responses to the set questions will be recorded, along with related discussion. The interview process is intended to be open-ended and further questions and remarks are encouraged.

The aim of the interviews is to elicit the participants' views on the City of Cape Town corporate intranet as a knowledge management tool, and to identify what improvements can be made to improve the current service offering.

Interviewee name:
Job description:
Department:
Date of interview:
(The above to be anonymised)

Looking beyond technical development towards the intranet's role as a knowledge management tool, how effective is it performing this function? (Organizational, departmental, individual)

Interview questions

1. Do you make use of the CCT corporate intranet on a daily basis to perform your job functions?
2. What services of the CCT corporate intranet do you use regularly?
3. How easy is it to locate digital resources via the CCT corporate intranet's navigation or search function?
4. Do you think that the CCT corporate intranet helps to promote organizational culture?
5. What do you regard as the most important function(s) of a corporate intranet in the modern digital workplace?
6. What services or functionality are missing or do not work well on the CCT corporate intranet?
7. Are you able to use the CCT corporate intranet as a collaboration platform?
8. How do you think the CCT corporate intranet should be structured to allow for effective knowledge sharing?
9. Who should be allowed to contribute to the CCT corporate intranet content and have a say in what information is made available to the organization?
10. Should the CCT corporate intranet incorporate social media functionality into its service offering?
11. Do you experience any organizational restrictions on using the CCT corporate intranet as an effective KM tool?

12. Do any aspects of organizational culture inhibit the implementation of KM best practices?

Additional questions and remarks arising from the interview to be added as necessary.

Appendix B: Interview transcripts

The participant interviews were conducted over a period of several weeks after which they were transcribed and annotated. Due to considerations of length, the transcripts have been uploaded to an online hosting service.

Please note: The participant identities have been anonymised in accordance with the research study requirements and a reference code has been applied to allow for citation from the interview transcripts. Interviewees are designated by number (1 or 2) indicating their designation as either round 1 or round 2 interviewees; and letter (A – G).

The interview transcripts are available via ZivaHub at the following URL: https://figshare.com/s/c69fb9b9172f54bcd138 or alternatively via the DOI link: 10.25375/uct.22041137 (when approved for publication).

Appendix C: Ethics Clearance and Research Permission

Ethics Clearance

Ethics clearance was obtained from the University of Cape Town Research Ethics Committee. A copy of the ethics clearance letter is included below.

Department of Knowledge & Information Stewardship
University of Cape Town
Upper Campus

Private Bag X1, RONDEBOSCH, 7701 South Africa
Level 6 Hlanganani, The Chancellor Oppenheimer Library
Tel: +27 (0) 21 650 4546 Fax: +27 (0) 21 650 2529
E-mail: dkis@uct.ac.za
Internet: www.dkis.uct.ac.za

Ref No.: UCTDKIS2020110-07 24 November 2021

Dear Herbert Evans,

Re: Ethics approval for masters research

I am pleased to inform you that ethics clearance has been granted by an Ethics Review Committee of the Department of Knowledge and Information Stewardship on behalf of the Faculty of Humanities, University of Cape Town, for you to proceed with collecting data for your masters study on 'An action research approach to improving the City of Cape Town corporate intranet'.

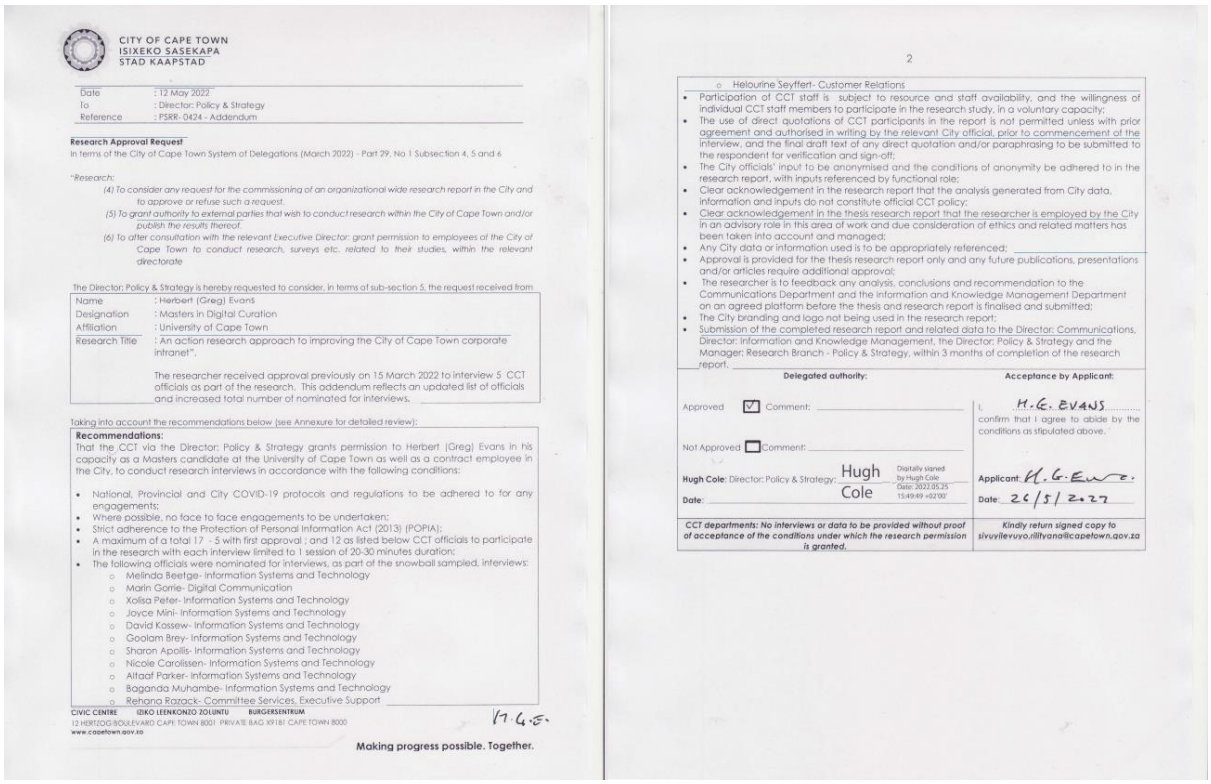
We wish you well with your data collection and the completion of your research.

Yours faithfully,

Dr Mzwandile Shongwe
Chair: Department (DKIS) Research Ethics Committee

Research Permission

Permission to conduct research for the study was granted by the City of Cape Town. Copies of the letters of permission are included below.



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

Date : 12 May 2022
To : Director: Policy & Strategy
Reference : PSRR- 0424 - Addendum

Research Approval Request
In terms of the City of Cape Town System of Delegations (March 2022) - Part 29, No 1 Subsection 4, 5 and 6

"Research:
(4) To consider any request for the commissioning of an organizational wide research report in the City and to approve or refuse such a request.
(5) To grant authority to external parties that wish to conduct research within the City of Cape Town and/or publish the results thereof.
(6) To after consultation with the relevant Executive Director: grant permission to employees of the City of Cape Town to conduct research, surveys etc. related to their studies, within the relevant directorate

The Director: Policy & Strategy is hereby requested to consider, in terms of sub-section 5, the request received from

Name	: Herbert (Greg) Evans
Designation	: Masters in Digital Curation
Affiliation	: University of Cape Town
Research Title	: An action research approach to improving the City of Cape Town corporate intranet".

The researcher received approval previously on 15 March 2022 to interview 5 CCT officials as part of the research. This addendum reflects an updated list of officials and increased total number of nominated for interviews.

Taking into account the recommendations below (see Annexure for detailed review):

Recommendations:
That the CCT via the Director: Policy & Strategy grants permission to Herbert (Greg) Evans in his capacity as a Masters candidate at the University of Cape Town as well as a contract employee in the City, to conduct research interviews in accordance with the following conditions:

- National, Provincial and City COVID-19 protocols and regulations to be adhered to for any engagements;
- Where possible, no face to face engagements to be undertaken;
- Strict adherence to the Protection of Personal Information Act (2013) (POPIA);
- A maximum of a total 17 - 5 with first approval ; and 12 as listed below CCT officials to participate in the research with each interview limited to 1 session of 20-30 minutes duration;
- The following officials were nominated for interviews, as part of the snowball sampled, interviews:
  - Melinda Beetge- Information Systems and Technology
  - Marin Gorrie- Digital Communication
  - Xolisa Peter- Information Systems and Technology
  - Joyce Mini- Information Systems and Technology
  - David Kassew- Information Systems and Technology
  - Goolam Brey- Information Systems and Technology
  - Sharon Apollis- Information Systems and Technology
  - Nicole Carolissen- Information Systems and Technology
  - Altaaf Parker- Information Systems and Technology
  - Baganda Muhambe- Information Systems and Technology
  - Rehana Razack- Committee Services, Executive Support

M.G.E.

CIVIC CENTRE IDIKO LEENKONZO ZOLUNTU BURGERSENTRUM
12 HERTZOG BOULEVARD CAPE TOWN 8001 PRIVATE BAG X9181 CAPE TOWN 8000
www.capetown.gov.za

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- Heloutine Seyffert- Customer Relations

- Participation of CCT staff is subject to resource and staff availability, and the willingness of individual CCT staff members to participate in the research study, in a voluntary capacity;
- The use of direct quotations of CCT participants in the report is not permitted unless with prior agreement and authorised in writing by the relevant City official, prior to commencement of the interview, and the final draft text of any direct quotation and/or paraphrasing to be submitted to the respondent for verification and sign-off;
- The City officials' input to be anonymised and the conditions of anonymity be adhered to in the research report, with inputs referenced by functional role;
- Clear acknowledgement in the research report that the analysis generated from City data, information and inputs do not constitute official CCT policy;
- Clear acknowledgement in the thesis research report that the researcher is employed by the City in an advisory role in this area of work and due consideration of ethics and related matters has been taken into account and managed;
- Any City data or information used is to be appropriately referenced;
- Approval is provided for the thesis research report only and any future publications, presentations and/or articles require additional approval;
- The researcher is to feedback any analysis, conclusions and recommendation to the Communications Department and the Information and Knowledge Management Department on an agreed platform before the thesis and research report is finalised and submitted;
- The City branding and logo not being used in the research report;
- Submission of the completed research report and related data to the Director: Communications, Director: Information and Knowledge Management, the Director: Policy & Strategy and the Manager: Research Branch - Policy & Strategy, within 3 months of completion of the research report.

Delegated authority:	Acceptance by Applicant:
Approved ☑ Comment:	I, M.G. EVANS confirm that I agree to abide by the conditions as stipulated above.
Not Approved ☐ Comment:	
Hugh Cole: Director: Policy & Strategy: Hugh Cole Digitally signed by Hugh Cole Date: 2022.05.25 15:49:49 +02'00'	Applicant: M.G.Evans
Date:	Date: 26/5/2022
CCT departments: No interviews or data to be provided without proof of acceptance of the conditions under which the research permission is granted.	***Kindly return signed copy to sivuvilevuyo.zilitvana@capetown.gov.za***