

**Guiding principles for adopting and promoting the use of Enterprise 2.0
collaboration technologies within the enterprise environment**

by

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I declare that the dissertation entitled GUIDING PRINCIPLES FOR ADOPTING AND PROMOTING THE USE OF ENTERPRISE 2.0 COLLABORATION TECHNOLOGIES WITHIN THE ENTERPRISE ENVIRONMENT is my own work, and that all sources used or quoted in the study have been indicated and acknowledged by means of complete references.

Mr Robert Louw

Date

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Abstract

Although Enterprise 2.0 collaboration technology toolsets present enterprises with a significant amount of business benefits, such as improved enterprise communication, collaboration, creativity and innovation; nevertheless, enterprises are still facing tremendous challenges in promoting and sustaining end-user adoption.

The challenges associated with the adoption and promotion of Enterprise 2.0 collaboration technologies can often be linked to a resistance to change, a closed culture environment, and concerns pertaining to information security, technology complexity, as well as an unclear enterprise collaboration technology strategic roadmap.

The primary objective of this study was to determine how generic guiding principles could facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment. In support of the primary objective, our sub-objectives were to identify the challenges that enterprises, as well as enterprise end-users experience when adopting and promoting Enterprise 2.0 collaboration technologies, as well as to explore and describe the critical success factors for adopting and promoting Enterprise 2.0 collaboration technologies.

A case study technique was used to gather the data from a large South African information and communications technology (ICT) enterprise operating within the retail sector based in Johannesburg. Enterprise end-users that formed part of the case study were selected by using purposive sampling. The end-users were selected, based on their experience, project sponsorship, as well as the project-participation roles performed in the adoption of their Enterprise 2.0 collaboration technology toolset.

Semi-structured interviews were conducted on three (3) end-users, comprising a business analyst, a technology specialist and a senior executive. Furthermore, administered questionnaires were completed by five (5) end-users, who actively use their Enterprise 2.0 collaboration technology toolset on a daily basis, performing operational, as well as business administrative tasks.

This study used a qualitative research approach. Since validity forms a vital role in any qualitative study, this research study incorporated three validity approaches, including: the theoretical, internal and external approaches. The theoretical and external validity approaches

were used to validate the identified guiding principles through a systematic review of the existing literature, as well as reviews and comments obtained from two subject-matter experts representing independent enterprises.

Furthermore, internal validity was employed to complement and substantiate the research findings, consisting of project documents and reports made available by the enterprise.

The main contribution in this research study is a set of ten (10) guiding principles that could be applied by enterprises either planning to, or in the process of adopting an Enterprise 2.0 collaboration technology toolset. Furthermore, the guiding principles could assist enterprises in formulating a Enterprise 2.0 collaboration technology adoption strategy, incorporating key adoption elements, including commitment, promotion and sustainability.

Key terms:

Enterprise 2.0; Web 2.0; Enterprise 2.0 collaboration technology toolset; Technology-adoption model; Maturity model; Guiding principles; Adoption strategy.

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Chapter 1 - Introduction

1.1 Introduction

This chapter presents an overview of Web 2.0 and Enterprise 2.0. The chapter describes the problem statement, research questions and objectives, scope and limitations of the study conducted, research ethical considerations taken into account, the research methodology used, and provide a list of definition of terms. Furthermore, the significance of the study is introduced and the chapter concludes with a dissertation chapter layout overview.

1.2 Background

Web 2.0 technologies have made significant advances in providing users with the tools required to adopt and promote a culture of enterprise collaboration. Compared to its predecessor, Web 1.0, Web 2.0 represents a paradigm shift in how people share, contribute and distribute content (Lin, 2007:101).

Web 2.0 encapsulates a number of technologies, including blogs, video and image sharing, tagging, wikis, social networking sites, in addition to Really Simple Syndication (RSS) subscriptions and related tools, which provide users with a rich, lightweight and interactive user interface.

Murugesan (2007:34) describes Web 2.0 as a “collection of technologies, business strategies and social trends”. According to Sari *et al.* (2008:2), Web 2.0 technologies allow enterprises to move from established business processes and set routines, to a more flexible and interactive form of communication and collaboration.

The term ‘Web 2.0’, is used interchangeably with the term ‘Enterprise 2.0’ (McAfee, 2009). However, there is a clear distinction between the two terms. Ramirez-Medina (2009) states that the term ‘Enterprise 2.0’ is the application of Web 2.0 technologies within the enterprise environment, in order to allow employees to collaborate, share ideas, communicate and generate content. The term ‘collaboration’ within the Enterprise 2.0 context, can be defined as a process whereby two or more individuals, groups or enterprises work together to achieve a common goal (Turban, Liang and Wu, 2011:139).

Enterprise 2.0 collaboration technologies allow enterprises to leverage Web 2.0 technologies to harness collective intelligence through participation (Soriano *et al.*, 2007). In addition

Enterprise 2.0 collaboration technologies present significant benefits to an enterprise, by fostering collaboration between employees, suppliers, partners and customers and ultimately contributing towards enterprise-intellectual capital (Bruno, Marra and Mangia, 2011).

Although enterprises are increasingly investing in Enterprise 2.0 collaboration technology toolsets to facilitate knowledge-sharing, as well as enterprise communication and collaboration, many enterprises are still facing significant challenges pertaining to end-user adoption. The adoption process is often faced with end-user resistance resulting in a lengthy adoption process.

The objective of this study was to obtain an in-depth understanding of the end-user adoption challenges experienced by enterprises when adopting Enterprise 2.0 collaboration technology toolsets, as well as to identify the guiding principles necessary to promote and sustain end-user adoption in an enterprise environment.

1.3 Research problem

Although Enterprise 2.0 collaboration technologies present a number of benefits, enterprises are still facing significant challenges with regard to adopting and promoting the use of Enterprise 2.0 collaboration technologies in the enterprise environment.

Some of the greatest challenges that enterprises face; are how to promote a culture of enterprise collaboration, overcome communication short comings between business silos and, departments, and ensure that up-to-date and relevant information is distributed timeously within the enterprise at an appropriate level of quality and quantity (Ferron, Massa and Odella, 2011).

Enterprise 2.0 collaboration technologies differ significantly from traditional process-oriented enterprise information systems, such as enterprise resource planning (ERP) and others. Traditional enterprise information systems often have a direct impact on the enterprise's underlying business processes, structure and business roles; whereas Enterprise 2.0 technologies have a more indirect impact. As a result, Enterprise 2.0 collaboration technologies are not regarded as mandatory participating systems compared to traditional process-oriented information systems (Raeth *et al.* 2010:2).

Although many enterprises have made investments in Enterprise 2.0 collaboration technology toolsets, not many of these enterprises are aware of the level of user adoption and participation (McAfee, 2011).

A market research survey conducted by the Association for Information and Image Management (AIIM) in 2009 on enterprises operating in the United States, Canada, the United Kingdom, Ireland, and Europe concluded that 50% of enterprises were unable to justify a return on their initial investment (ROI) in Enterprise 2.0 collaboration technology tools; 43% lacked a full understanding of the capabilities of Enterprise 2.0 collaboration technologies; and 40% identified corporate culture as the major stumbling block (Miles, 2009).

AIIM conducted a follow up market research survey in 2011 on enterprises operating in North America and Europe, in which 451 of their AIIM community network members responded. Their research findings concluded that the reluctance of staff to contribute is one of the major barriers towards the adoption of Enterprise 2.0 collaboration technologies. Secondly, the lack of top management participation had increased from 26% in 2010 to 36% in 2011 (Miles, 2011).

Market research conducted by Forrester in 2010, concluded that 62% of their 931 North American and European participants surveyed were not interested or did not have the necessary know-how to go about implementing and adopting Enterprise 2.0 collaboration technologies in their respective enterprises (Koplowitz, 2010).

Enterprise decision-makers generally use the classical business case, incorporating return on investment (ROI) calculations to justify their investment in information systems. However, Enterprise 2.0 collaboration technologies offer intangible benefits, which are difficult to quantify, making ROI calculations more difficult to justify (McAfee, 2011).

Schneckenberg (2009) stated that one of the challenges faced by enterprise management teams when adopting Enterprise 2.0 collaboration technologies is to balance top-down control with bottom-up autonomy. According to Chui, Miller and Roberts (2009), Enterprise 2.0 technologies require a bottom-up approach to user participation and adoption, where user groups can form independently, compared to traditional enterprise information systems.

Enterprise collaboration requires a culture that encourages openness, engagement, sharing, participation, creativity and innovation (Tapscott, 2006). This presents a significant concern

to enterprises that regard Enterprise 2.0 collaboration technologies as a loss of control, a security risk, and a distraction for employees and as technically complex, which indicates a low level of maturity towards technology adoption within an enterprise (Fuchs-Kittowski *et al.*, 2009).

Against this background, this study has focused on exploring the challenges that South African enterprises face towards adopting and promoting Enterprise 2.0 collaboration technology toolsets in the enterprise environment. The dissertation presents, as a contribution, a set of proposed guiding principles that were derived from a case study conducted on a large South African ICT enterprise operating within the retail sector based in, Johannesburg. The proposed guiding principles are presented and discussed in Chapter 7.

Although the proposed guiding principles were derived from a study conducted on a South African enterprise, the guiding principles could also be extended to other enterprises, located within different geographical locations. The identified guiding principles serve as generic principles that could be applied to different Enterprise 2.0 collaboration technology toolset adoption endeavours.

1.4 Research questions

The study aimed to answer the following research question: *How could generic guiding principles facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment?*

In order to answer the main research question, the following sub-questions were addressed:

1. What challenges do enterprises currently face when adopting Enterprise 2.0 collaboration technologies?
2. What are the challenges to using Enterprise 2.0 collaboration technologies within an enterprise environment?
3. What are the critical success factors for adopting and promoting Enterprise 2.0 collaboration technologies?
4. Which of the various Enterprise 2.0 collaboration technology tools have the potential to encourage collaboration within an enterprise?
5. What are the generic guiding principles for adopting and promoting Enterprise 2.0 collaboration technologies?

1.5 Research objectives

The main objective of this study was *to determine how generic guiding principles could facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment*. The main objective was achieved through the following sub-objectives listed below and summarised in Figure 1.1.

1. To identify the challenges that enterprises currently face when adopting and using Enterprise 2.0 collaboration technologies.
2. To identify the challenges to using Enterprise 2.0 collaboration technologies within an enterprise environment.
3. To identify the critical success factors for adopting and promoting Enterprise 2.0 collaboration technologies.
4. To identify and assess the various Enterprise 2.0 collaboration technology tools that have the potential to encourage collaboration within an enterprise environment.
5. To identify and assess generic guiding principles for adopting and promoting Enterprise 2.0 collaboration technologies.

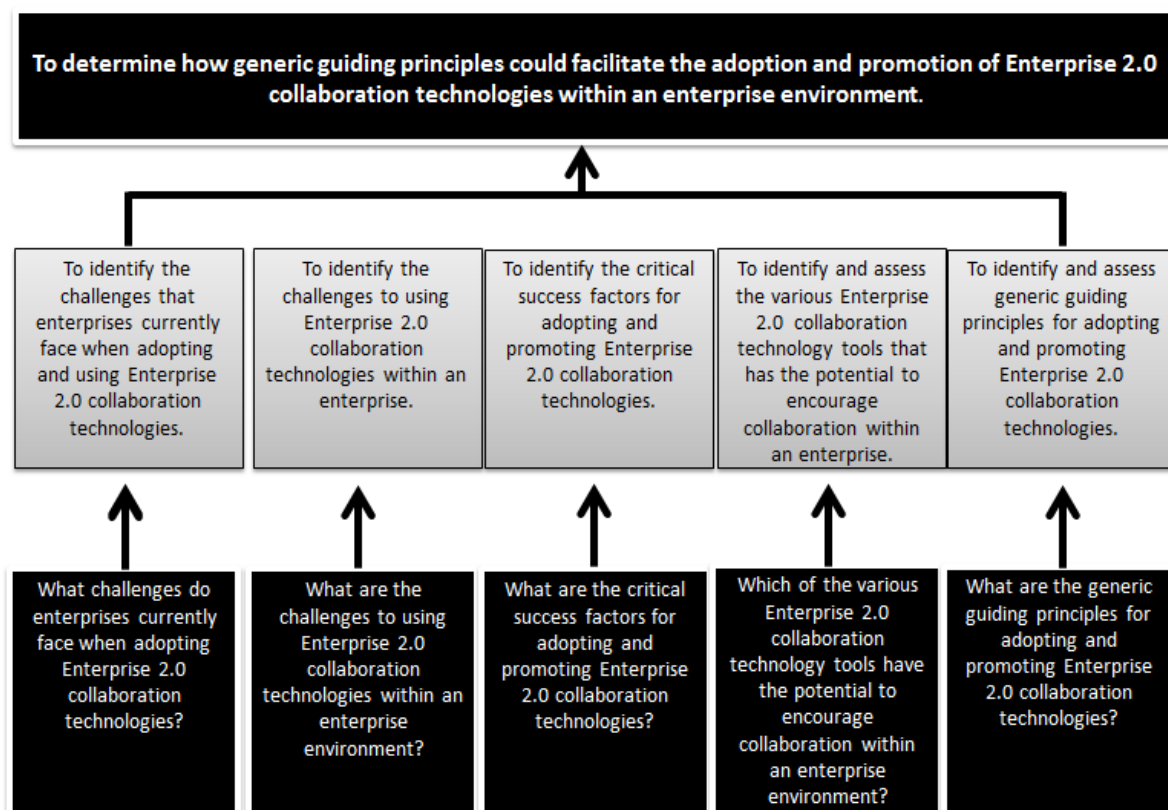


Figure 1.1 - The link between research questions and objectives

1.6 Significance of the study

This study primarily relates to the research field of collaboration, focusing on the generic guiding principles that facilitate the adoption and promotion of Enterprise 2.0 collaboration technology toolsets in South African enterprises.

A significant amount of research has already been conducted on identifying the key benefits, as well as challenges, of Enterprise 2.0 collaboration technologies in the enterprise environment (Fu *et al.* 2009; Li, 2012; Bughin and Chui, 2010; Back and Kock, 2011; Bin Husin and Swatman, 2010). However, there was a research gap in terms of identifying the guiding principles for the adoption and promotion of Enterprise 2.0 collaboration technologies.

This study contributes towards the current body of knowledge by proposing a set of guiding principles that can be applied by enterprises currently using, or planning to adopt, Enterprise 2.0 collaboration technology toolsets.

1.7 Research methodology

This study used a qualitative research approach. Qualitative research enables the researcher to interpret the data collected in the form of words, images, company documents, interview records, websites and theoretical models, other than in the numerical format (Trauth, 2009:3171). Qualitative research data are gathered mainly via case studies, interviews, action research, ethnography and text analysis (Oates, 2006:266).

An exploratory, as well as a descriptive case study research technique was employed to gather the data from a large South African ICT enterprise operating within the retail sector, based in, Johannesburg. The exploratory case study research technique was chosen, as it allowed us to investigate and obtain in depth information on the research topic. Furthermore, a descriptive case study research technique was also chosen, as it allowed us to describe the challenges experienced, lessons learned, critical success factors identified, contributing towards the underlying guiding principles.

A case study can explore, explain and describe the various factors, issues, processes, influences and relationships of a phenomenon; and it then depicts a detailed picture, to allow the researcher to explain “How”, “What” and “Why” certain outcomes could occur within a given situation (Oates, 2006:142).

The selected enterprise was deliberately chosen, since it had been actively using an Enterprise 2.0 collaboration technology toolset for three years, and had gained significant insight and experience in promoting and sustaining end-user adoption of Enterprise 2.0 collaboration technology toolsets.

The objective was to obtain an in-depth understanding of the challenges experienced, as well as the lessons learned, during their Enterprise 2.0 collaboration technology-adoption endeavours. The primary data were collected by means of two methods: semi-structured interviews and questionnaires.

Enterprise end-users were selected using purposive sampling. Semi-structured interviews were conducted on end-users, requiring business analysts, technology specialists and information-technology managerial roles. The end-users were selected, based on their experience, project sponsorship, as well as the project-participation roles performed in the adoption of their Enterprise 2.0 collaboration technology toolset.

In addition, researcher administered questionnaires were completed by end-users who actively use their Enterprise 2.0 collaboration technology toolset on a daily basis, performing operational, as well as business-administrative tasks. Additional details on the research methodology are discussed in Chapter 4.

1.8 Scope and limitations of this study

This study has made use of a qualitative research methodology, which is most applicable for this type of research. However, there are some limitations to the type of data collection methods used in this study. Case studies tend to be perceived as lacking rigour, and leading to generalisations that have poor credibility (Oates, 2006:150). Semi-structured interviews and questionnaires are also often perceived as lacking credibility due to the subjective answers that are given (Oates, 2006:198-229).

Although the research study was based on a single case study, triangulation was used to ensure the validity of the research findings. Triangulation was used to mitigate poor data analysis and credibility (Saunders, Lewis and Thornhill, 2003). Secondary data sources were also used to complement and substantiate the research findings, consisting of project documents and available reports made available by the enterprise.

The research study incorporated three validity approaches, including: the theoretical, internal and external approaches. The theoretical and external validity approaches were used to validate the identified guiding principles through a systematic review of the existing literature, as well as reviews and comments obtained from two subject-matter experts representing independent enterprises. Furthermore, internal validity was employed to complement and substantiate the research findings, consisting of project documents and reports made available by the enterprise.

1.9 Ethical considerations

Ghuri and Grønhaug (2005) define research ethics as moral principles and behaviours that describe acceptable research activities. Guillemin and Gillam (2004:263) identify two dimensions to qualitative research ethics. The first is “procedural ethics” (obtaining approval from an ethics committee to undertake a research project) and the second “ethics in practice” (the day-to-day ethical issues and considerations that need to be taken into account when conducting research). This study conforms to the UNISA research ethics policy (2007). The following ethical considerations were taken into account during the course of this study:

- The respondent’s identities were protected.
- The identity of the enterprise was protected.
- Prior to interviewing or administering questionnaires to the respondents, the objectives, risks and nature of the research were fully explained.
- The respondents’ participation was voluntary; and they were not obligated to answer all the questions.
- All answered questions were confirmed with each respondent, in order to avoid the ambiguous representation of collected information.

1.10 Definition of terms

Table 1.1 - Definition of terms

Term	Definition
Blogs	A blog is a rich content web site that allows users to share their ideas, thoughts and suggestions. Each blog represents a blog post. Blogs enable users with similar interests to collaborate on a specific topic.
Capability Maturity Model Interoperability (CMMI)	The CMMI is a variation of the Capability Maturity Model (CMM), initially introduced by the Software Engineering Institute (SEI) in 1993. CMMI allows enterprises to establish a roadmap for the adoption of collaboration technology toolsets as well as to define interoperability practices.
Collaboration Engineering Maturity Model (CEMM)	The CEMM focuses on continuously improving and sustaining enterprise collaboration. CEMM is based on the International Organization for Standardization / International Electro-technical Commission (ISO/IEC) technical report 15504.
Discussion forums	Discussion forums allow users to generate discussions online, sharing interests as well as subscribing to other discussion forums.
Enterprise 2.0	Enterprise 2.0 is the application of Web 2.0 technologies in the enterprise environment.
Enterprise collaboration	Enterprise collaboration can be viewed as a method for problem-solving, contributing and distributing content in the enterprise environment.
Enterprise Collaboration Maturity Model (ECMM)	The ECMM allows us to define and assess enterprise collaboration maturity.
Enterprise Content Management	Enterprise content management (ECM) represents both a strategy and technology toolset to deal with all types of content within an enterprise environment.
Instant Messaging	Instant messaging relates to communication software which allows users to communicate with each other in real-time audio and video.
Mash-ups	Mash-ups can be described as a web site or web page that can be used to publish information from various other information sources, for example, presenting business intelligence (BI) reports hosted on a data warehouse system in an enterprise's corporate portal.
Podcasts	Podcasts are either audio or video multimedia recordings that can be embedded into web pages, such as blogs or wikis.

Term	Definition
Really Simple Syndication (RSS)	RSS feeds allow users to subscribe to Web 2.0 content, such as blogs. The RSS feeds can be pushed down to a client, such as an Internet browser or email client.
Social Networking Sites (SNS)	Social networking sites provide each user with their own space to contribute and share both personal and work-related content, such as documents, images, video and audio content.
Tagging	Tagging present's users with the ability to establish relationships between content sources, making it easier for users to search, discover and navigate through content.
TAM	The Technology Acceptance Model is based on the assumption that if technology is easy to use, the acceptance and use of the technology would be greater (Davis, 1989).
VAM	The Value-Added Model is based on the cost-benefit trade-off approach, which weighs the perceived benefits against the costs of gaining those benefits.
Web 2.0	Web 2.0 encapsulates a number of technologies, including blogs, wikis, social networking sites, video and image sharing, tagging, Really Simple Syndication (RSS) subscriptions and many more.
Wikis	A wiki system can be regarded as a content management or collaboration-authorising tool that allows users to contribute content, which can then be reviewed and authorised.

1.11 Dissertation chapter overview

This dissertation consists of eight (8) chapters, as depicted in Figure 1.2. Chapters 2 and 3 present a systematic review of the existing literature. The objective of the literature review was to obtain and present a detailed analysis of previously studied concepts, as well as to identify the *status quo*.

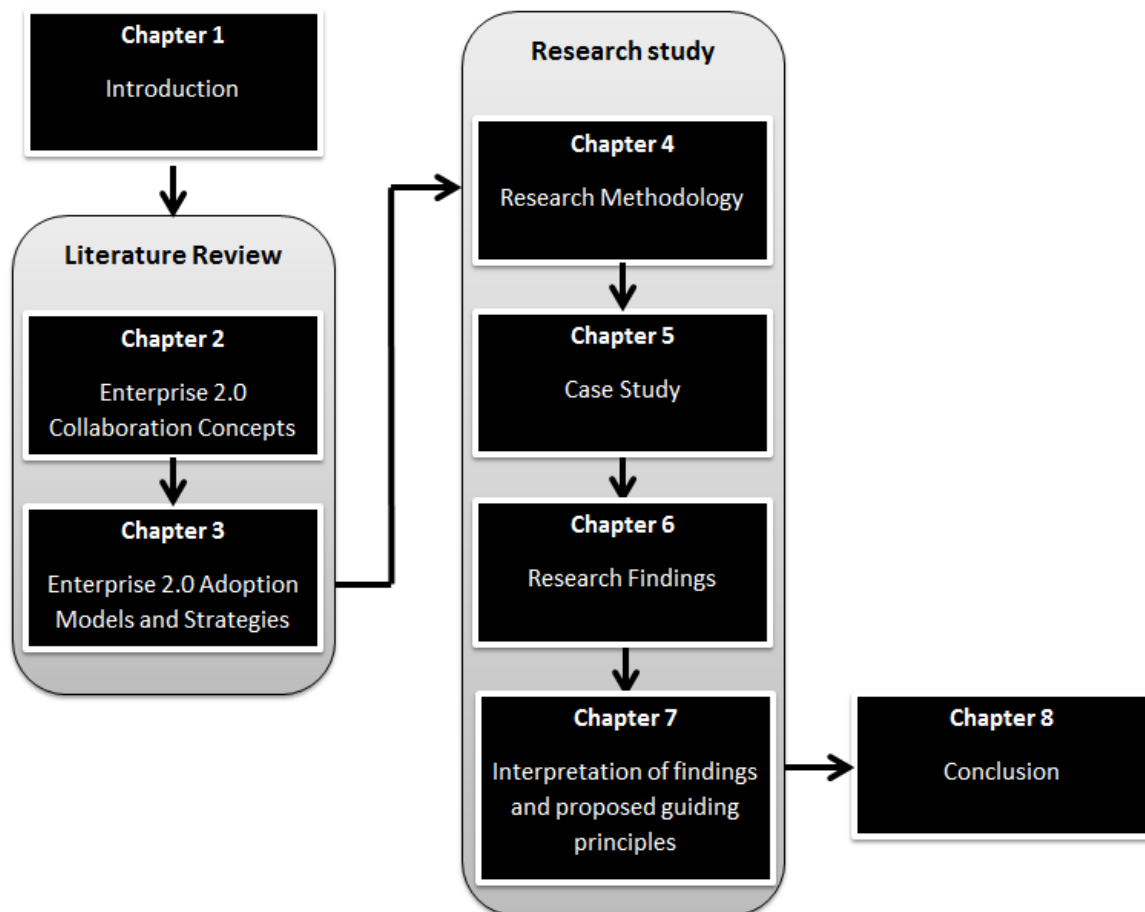


Figure 1.2 - Dissertation chapter layout diagram

Chapter 4 presents the research methodology used to gather and interpret the research data. Chapter 5 presents an overview of the selected case study; and chapter 6 presents the research findings, based on the case study conducted. The resulting guiding principles are presented and discussed in Chapter 7. Finally a conclusion and proposed future research projects are presented and discussed in Chapter 8. Table 1.2, presents an overview of each chapter.

Table 1.2 - Overview of dissertation chapters

Chapter	Chapter Overview
Chapter 1 – Introduction	Chapter 1 presents an overview of Web 2.0 and Enterprise 2.0. The chapter describes the problem statement, research questions and objectives, scope and limitations of the study conducted, research ethical considerations taken into account, the research methodology used, and provide a list of definition of terms. Furthermore, the significance of the study is introduced and the chapter concludes with a dissertation chapter layout overview.
Chapter 2 – Enterprise 2.0 Collaboration Concepts	Chapter 2 introduces the key concepts pertaining to Enterprise 2.0. This chapter consists of four sections. Section 2.2 defines and establishes the link between enterprise collaboration, Web 2.0 and Enterprise 2.0. Section 2.3 reviews the benefits of adopting Enterprise 2.0 collaboration technologies within the enterprise environment. Section 2.4 reviews the challenges experienced by enterprise’s when adopting Enterprise 2.0 collaboration technologies. Finally, section 2.5 reviews the collaboration technology toolset leaders, as defined by Gartner in 2012 (Gilbert <i>et al.</i> , 2012).
Chapter 3 - Enterprise 2.0 Adoption Models and Strategies	Chapter 3 consists of five sections. Section 3.2 provides a systematic review and comparison of the existing technology-adoption models. Section 3.3 presents a review of existing maturity models, as well as those adapted to Enterprise 2.0 collaboration technologies. Section 3.4 provides a review of the existing adoption strategies and frameworks applied to Enterprise 2.0 collaboration technologies. In conclusion, Section 3.5 presents a review of the critical success factors that are considered vital in adopting and promoting Enterprise 2.0 collaboration technologies.
Chapter 4 – Research Methodology	Chapter 4 presents the research methodology, as well as the reasoning approach employed. The remainder of the chapter discusses the chosen research strategy, the primary data-collection methods used, the population of interest, as well as the validity and ethical considerations taken into account, which must be adhered to.

Chapter	Chapter Overview
Chapter 5 – Case study	Chapter 5 presents an overview of the enterprise studied, as well as the criteria used in selecting the chosen enterprise. In addition, the chapter presents the case study description, listing the strategic objectives of the chosen enterprise, as well as the Enterprise 2.0 collaboration technology selection approach taken in identifying the enterprise’s underlying information architecture, Enterprise 2.0 collaboration technology toolset, thereby defining the enterprise’s site structure, as well as defining the roles and responsibilities of the enterprise’s Enterprise 2.0 collaboration technology steering-committee.
Chapter 6 – Research Findings	<p>Chapter 6 presents the research findings obtained from the semi-structured interviews (see Appendix F) and the researcher-administered questionnaires (see Appendix E) conducted on the selected enterprise. The findings are presented in relation to the adoption approach chosen by the case study enterprise.</p> <p>The findings present valuable insights into the challenges experienced, as well as the lessons learned during the enterprise’s Enterprise 2.0 collaboration technology adoption endeavours. In conclusion, the chapter summarises the research findings in relation to four of the five supporting research questions.</p>
Chapter 7 – Interpretation of findings and proposed guiding principles	Chapter 7 presents the key themes identified, as well as the proposed guiding principles, are introduced and discussed. The guiding principles were derived from the case study findings presented in Chapter 6. Furthermore, the guiding principles are validated and assessed via a systematic review of the existing literature, as well as external reviews and comments obtained from two subject-matter experts from independent enterprise’s.
Chapter 8 – Conclusion	Chapter 8 presents an overview of the achievements, as well as the shortcomings of this research is presented. Moreover, this chapter consists of four sections. Section 8.2 presents an overview of the research study conducted. Section 8.3 maps the research questions to the research findings. Section 8.4 presents the research study contribution towards the existing body of knowledge; and in conclusion, Section 8.5 presents future potential research projects.

1.12 Chapter summary

In this chapter, Web 2.0 and Enterprise 2.0 were introduced. The problem statement pointed out that, although Enterprise 2.0 collaboration technologies present a number of benefits, such as improved enterprise communication, collaboration, creativity and innovation, enterprises are still facing significant challenges in adopting and promoting the use of Enterprise 2.0 collaboration technologies in the enterprise environment.

The challenges associated with the adoption and promotion of Enterprise 2.0 collaboration technologies can often be linked to a resistance to change, a closed culture environment, and concerns pertaining to information security, technology complexity, as well as an unclear enterprise collaboration technology strategic roadmap.

The primary research question of this dissertation was: *“How could generic guiding principles facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment?”* And the supporting objective of this dissertation was: *“To determine how generic guiding principles could facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment.”*

Chapter 2 - Enterprise 2.0 Collaboration Concepts

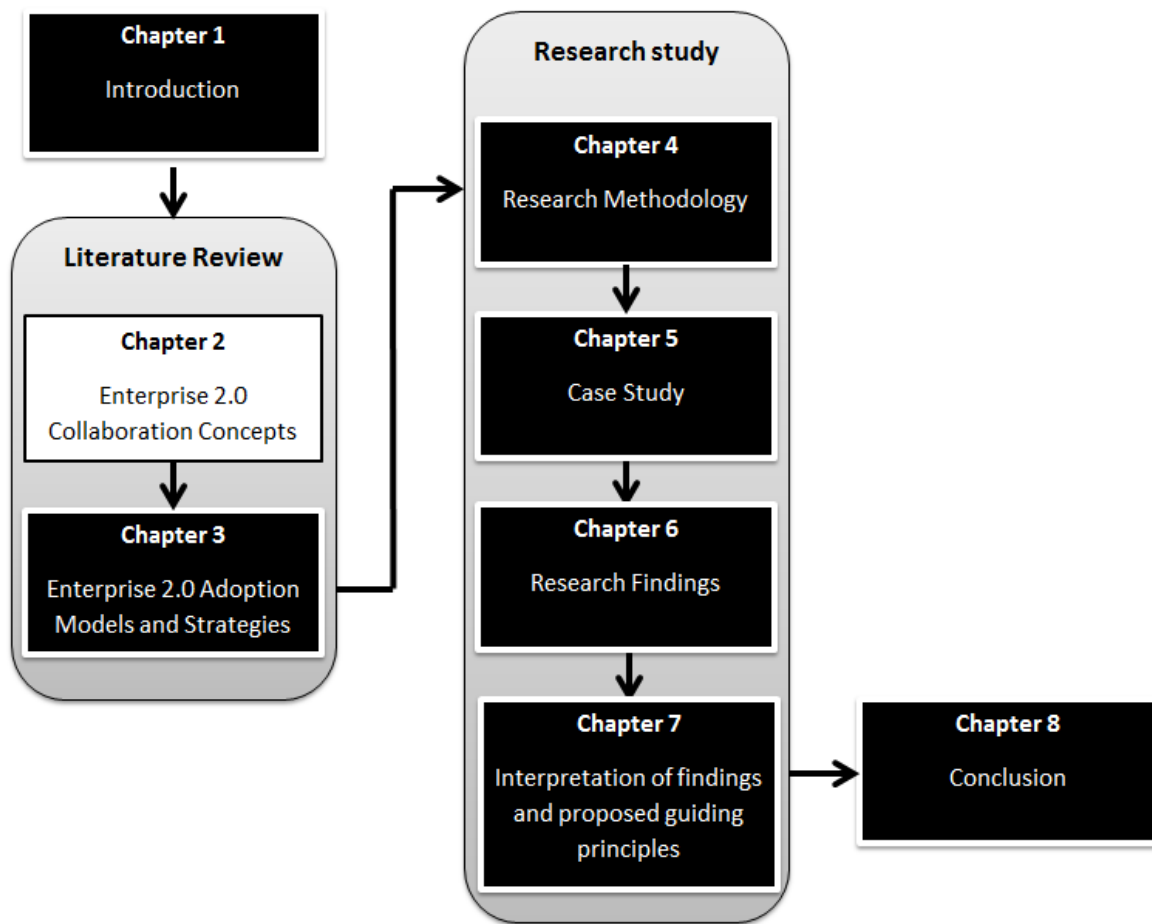


Figure 2.1 - Chapter progression

2.1 Introduction

In this chapter the key concepts pertaining to Enterprise 2.0 are introduced. This chapter consists of four sections. Section 2.2 defines and establishes the link between enterprise collaboration, Web 2.0 and Enterprise 2.0. Section 2.3 reviews the benefits of adopting Enterprise 2.0 collaboration technologies within the enterprise environment. Section 2.4 reviews the challenges experienced by enterprises when adopting Enterprise 2.0 collaboration technologies. Finally, section 2.5 reviews the collaboration technology toolset leaders, as defined by Gartner in 2012 (Gilbert *et al.*, 2012).

2.1.1 Chapter contribution towards the research study

The primary objective of this literature review chapter is to introduce Enterprise 2.0 collaboration, including the underlying Enterprise 2.0 collaboration technology building blocks: Web 2.0 and Enterprise 2.0. Furthermore, the chapter presents a systematic review of the existing literature on the Enterprise 2.0 collaboration technology adoption benefits, as well as the underlying challenges that enterprises face when adopting and promoting Enterprise 2.0 collaboration technology toolsets. More importantly, the chapter assists in partially answering two of the supporting research questions:

- What challenges do enterprises currently face when adopting Enterprise 2.0 collaboration technologies?
- What are the challenges in using Enterprise 2.0 collaboration technologies within an enterprise environment?

2.2 Enterprise collaboration

Enterprises are finding new and innovative ways to capitalize on Enterprise 2.0 collaboration techniques and technologies, in order to improve productivity and efficiency among employees, business units and external parties. It is therefore important to first define Enterprise 2.0 collaboration, including the Enterprise 2.0 collaboration building blocks: Web 2.0 and Enterprise 2.0.

Enterprise 2.0 collaboration technologies allow enterprises to leverage Web 2.0 technologies to harness collective intelligence through end-user participation. In addition, Enterprise 2.0 collaboration technologies present significant benefits to an enterprise, by fostering collaboration between employees, suppliers, partners and customers and ultimately, they contribute to enterprise intellectual capital and knowledge (Bruno, Marra and Mangia, 2009).

Web 2.0 technologies form the primary building blocks that enable open collaboration, as well as the exchange of information and knowledge either within companies, or between companies and their partners or customers, (Schneckenberg, 2009).

The term **collaboration** within the Enterprise 2.0 context, may be defined as a process whereby two or more individuals, groups or enterprises, work together to achieve a common goal (Turban, Liang and Wu, 2011).

Tapscott (2006) defines **collaboration** within the Enterprise 2.0 context, as the means by which people within different departments, business silos and geographical locations, as well as different enterprises, work together using the Internet as a collaboration medium to generate wisdom, and by so doing establish a collaborative network.

Figure 2.2 adapted from Tapscott (2006), depicts five cascading levels of enterprise collaboration. The lower levels cascade up to the higher levels, which in turn present the collaboration capability. Furthermore, Tapscott (2006) regards Enterprise 2.0 collaboration technologies as technology enablers, assisting enterprises in gaining and sustaining a competitive advantage.

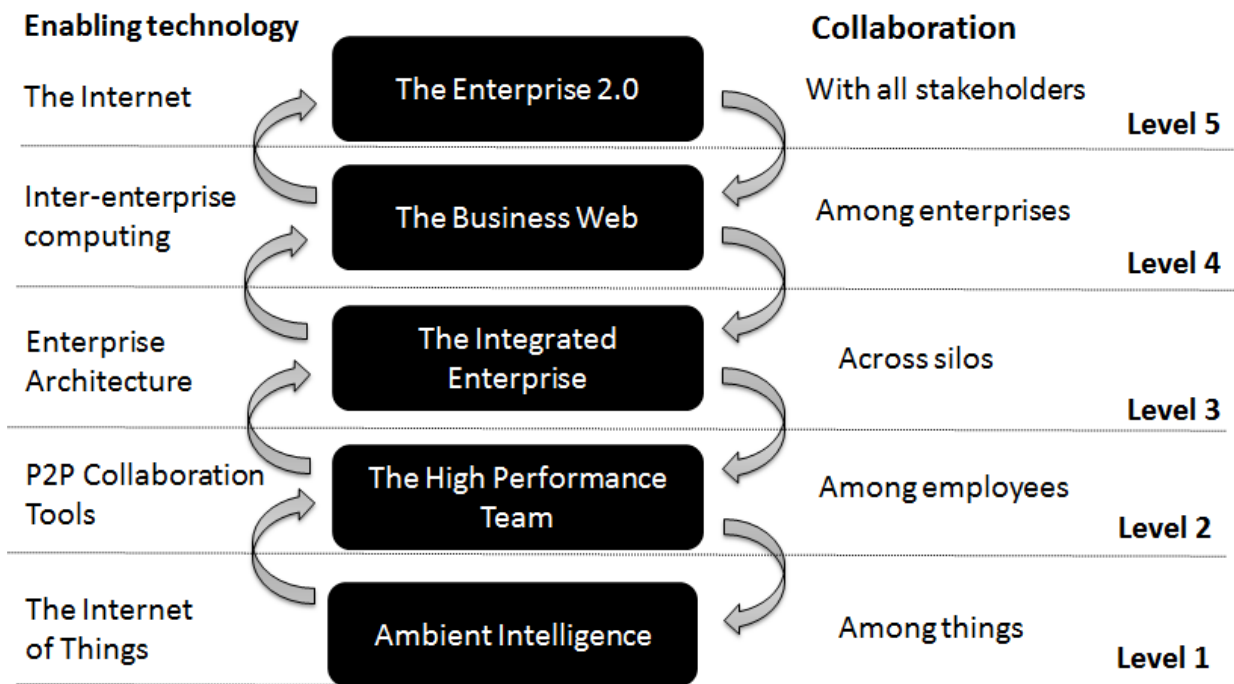


Figure 2.2 - Five cascading levels of collaboration

- **Level 1 – Collaboration among things**

In our daily lives, we are surrounded by smart devices that give rise to ambient intelligence, thereby allowing us to collaborate. Ambient intelligence allows enterprises to scale in new radical ways with collaboration at the centre of this movement.

- **Level 2 – Collaborating among employees**

Collaboration does not always occur in boardrooms. Employees collaborate via a magnitude of informal networks, including peer-to-peer (P2P) networking technologies, social network sites, and social events, to name but a few.

- **Level 3 – Collaboration across silos**

As enterprises grow and become more geographically dispersed, enterprises are looking at technology solutions to link and empower their various virtual teams. The Internet has presented enterprises with innovative tools, allowing employees to communicate, share content, and collaborate with one another from anywhere around the globe. Enterprise architectures are becoming more sensitive towards Internet-based information, communication and collaboration tools, allowing enterprises to collaborate and communicate across business silos.

- **Level 4 – Collaboration among enterprises**

The Internet has revolutionised the way in which enterprises collaborate with each other. The Internet has allowed enterprises to establish and extend business processes externally; for example, by way of supply-chain networks, establishing strategic partnerships to reach a wider market segment, as well as electronic commerce.

- **Level 5 – Global collaboration with and among stakeholders**

The Internet has presented enterprises with a mechanism to become interconnected on a global scale. This has presented enterprises with both opportunities for example, by reaching target consumers, maturing products and services as well as with threats, for example, a more competitive market on a global scale.

The five cascading levels of collaboration suggest that collaboration occurs within various enterprise domains, both in formal and informal settings. Furthermore, collaboration plays a pivotal role in an enterprise's ability to innovate and create a competitive advantage.

2.2.1 Web 2.0

Web 2.0 is the result of an evolution of social and technological trends. Compared to its predecessor Web 1.0, which was static in its very nature, Web 2.0 has opened the doors to the masses allowing everyone to collaborate on a global scale using the Internet as the underlying platform (Murugesan, 2007; McAfee, 2006).

The primary role of Web 2.0 technologies in enterprise collaboration scenarios is to enable a transition from the established mind-set in terms of workflow and business processes, as well as from the current rigid workplace IT-infrastructure to more flexible forms of collaboration, such as social networking and community-based forms of collaboration (Sari *et al.*, 2008).

Web 2.0 technologies have made significant advances in providing users with the tools required to adopt and promote a culture of enterprise collaboration. Bughin, Chui and Miller (2009:11) state that Web 2.0 technologies offer an attractive investment opportunity to enterprises wishing to improve their collaboration practices, by encouraging end-user participation, idea-sharing, and communication, which ultimately contribute to enterprise intellectual capital.

In essence, Web 2.0 is all about presenting users with the tools required to stimulate collaboration; by either consuming or contributing to online content (McAfee, 2006; Fuchs-Kittowski *et al.* 2009; Ajjan and Hartshorne, 2008, Murugesan, 2007). Web 2.0 encapsulates a number of technology tools. Table 2.1 presents an overview of each underlying tool.

Table 2.1 - Web 2.0 technology tools

Web 2.0 technology tools	Toolset overview
Blogs	Blogs (abbreviated from weblogs) are online journal entries that include text, images, links and web content saved on a website and distributed to other sites or readers using Really Simple Syndication (RSS) feeds. A blog is a rich content web site that allows users to share their ideas, thoughts and suggestions. Each blog represents a blog post. Blogs allow users with similar interests to collaborate on a specific topic.
Discussion forums	Discussion forums allow users to generate discussions online, sharing interests, as well as subscribing to other discussion forums (Cook, 2008).
Wikis	Wikis (What I Know Is) refers to collaborative websites, which allow users to contribute content in the form of adding, editing or removing, which can be reviewed and authorised. A wiki system can be regarded as a content management or collaboration-authorising tool.
Really Simple Syndication (RSS)	RSS feeds allow users to subscribe to Web 2.0 content, such as blogs, podcasts, news and other online information. The RSS feeds can be pushed down to a client, such as an Internet Browser or Email client.
Social bookmarking	Social bookmarking presents users with the ability to add and share searched web pages via a web service. Social bookmarking web services also encourage tagging, where users can categorise and assign keywords to web pages. Social bookmarking allows users to participate in group research projects (Cook, 2008).
Social Networking Sites (SNS)	Social networking sites present each user with their own space to contribute and share both personal and work-related content, such as documents, images, video and audio content. Social networks present users with the ability to establish connections with family, friends and other enterprise colleagues. Well-known social networking sites include, LinkedIn, Facebook and MySpace (Lenhart and Madden, 2007).
Podcasts	Podcasts are either audio or video multimedia recordings that can be embedded in a web page such, as Blogs or Wiki pages.
Mash-ups	Mash-ups can be described as web sites or web pages that can be used to surface information from various other information sources, for example presenting business intelligence (BI) reports hosted on a data-warehouse.
Tagging	Tagging present's users with the ability to establish relationships between content sources, making it easier for users to search, discover and navigate through content. Tagging allows multiple users to edit and review content (Cook, 2008).

Moreover, O'Reilly (2007) encapsulates the very essence of Web 2.0 technologies by identifying the following seven principles, as described in Table 2.2.

Table 2.2 - Web 2.0 principles

Web 2.0 Principles	Principle Overview
Web as a platform	Web 2.0 provides a platform for web developers, designers and users to extend on the existing capabilities, by tailoring their internal or external systems, based on Web 2.0 technologies.
Harnessing collective intelligence	Web 2.0 provides a mechanism to allow multiple users to collaborate and brainstorm using an interactive technology platform.
Data is next Intel inside	Data and the ability to exploit data in the form of information and knowledge are becoming more-and-more important in order to sustain and gain a competitive advantage.
End of the software release cycle	Web 2.0 emphasises continues improvement and co-development.
Lightweight programming model	Web 2.0 promotes loosely coupled systems and re-usability as core principles.
Software above the level of a single device	Web 2.0 technologies are designed to operate across various software and hardware technologies, with the objective to be both operating system and device independent.
Rich user experiences	Web 2.0 technologies are becoming as rich in functionality and appearance as most stand-alone software packages, making them easier to use.

2.2.2 Enterprise 2.0

Enterprise 2.0 allows enterprises to leverage Web 2.0 technologies, in order to harness collective intelligence through participation. In addition, Enterprise 2.0 collaboration technology toolsets present significant benefits to an enterprise, by fostering collaboration between employees, suppliers, partners and customers, and ultimately contributing to enterprise intellectual capital and knowledge (Bruno, Marra and Mangia, 2011).

McAfee (2006) was the first to coin the term “Enterprise 2.0”, defining it as “the use of emergent social software platforms within companies, or between companies and customers”. Based on this definition, Enterprise 2.0 can be regarded as a platform of services that could be applied inside and outside the enterprise environment in order to stimulate enterprise collaboration.

The key differentiator between Web 2.0 and Enterprise 2.0 is the use and application of Web 2.0 in the enterprise environment. Ramirez-Medina (2009) and Jandoš (2009:114) define the term 'Enterprise 2.0' as the application of Web 2.0 technologies in the enterprise environment, which enables employees to collaborate, share ideas, communicate and generate content. Moreover, Hodgkinson (2007) identified the following four key differentiating factors between Web 2.0 and Enterprise 2.0:

- **Critical mass of users**

In the Web 2.0 domain, outside the enterprise environment, it is the massive number of users that drive participation. Facebook¹ is a prime example of this. However, within the enterprise domain, this is a much more challenging task to accomplish and sustain. End-users focus on their core day-to-day business activities, with little to no motivation to participate in Enterprise 2.0 collaboration initiatives.

- **Pace of evolution of tools and ideas**

The Web 2.0 domain is constantly changing and adapting, presenting new and innovative ideas and concepts on a daily basis. While this is also applicable to the enterprise environment, elements such as change and release management often presents a barrier to innovation.

- **Hierarchy**

In the Web 2.0 domain, all users actively participate on the same level however, in the enterprise environment, corporate structures and security policies delegate a user's privileges to information.

- **Downsides**

In the Web 2.0 domain, risk is mitigated by the individual user participating. However, in the enterprise environment, the potential risks are much greater, and they could damage the corporate reputation, theft of intellectual property, and legal repercussions to name a few.

¹ For more information see: <http://www.facebook.com>

2.2.3 Enterprise 2.0 collaboration technology elements

Although Enterprise 2.0 encapsulates a number of Web 2.0 technology tools, from a collaboration perspective, it is important to identify the Web 2.0 collaboration technology elements that stimulate collaboration within an enterprise. McAfee (2006, 2009) identified the following six Enterprise 2.0 collaboration technology elements, known as SLATES. This is the acronym for Search, Links, Authoring, Tags, Extensions and Signals. The elements are described in Table 2.3.

Table 2.3 - Enterprise 2.0 SLATES

Element	Element Overview
Search	Search - provides users with the ability to discover content. The value of information depends on how easy it is to search for and gain access to information as and when required.
Links	Links - establish relationships and relevance between content. Web 2.0 technology tools, such as blogs and wiki pages has revolutionised the way in which users assemble content and establish relationships between various sources of content via links.
Authoring	Authoring – provides users with the ability to create, share and distribute content. With the vast amount of content being assimilated via blogs and wikis, this has allowed users to co-author content, allowing groups of individuals to participate in content generation and distribution
Tags	Tags – present an alternative to search and navigation features, by allowing users to access content in an unstructured manner. Tags allow users to categorise content by associating the content with a keyword description (tags). Tags also allow users to track what other content has been reviewed by other users, and by so doing, to create visibility and knowledge process patterns.
Extensions	Extensions – present users with related searched content, based on relevance. Extensions allow Enterprise 2.0 collaboration technology tools to present users with content that supports the existing content search, and by so doing to provide the user with a holistic picture of the content searched.
Signals	Signals – provide users with content alerts, either via electronic mail or RSS feeds. Signals allow users to keep up to date with content that is either, added, amended or removed. RSS (Really Simple Syndication) is a form of a signal technology. RSS allows users to be notified via a RSS client (for example Microsoft Outlook).

Although the SLATES model highlights the essential core elements of Enterprise 2.0, the model tends to be capability-based, rather than social-based. Hinchcliffe (2007) extended the SLATES model by introducing four new elements to Enterprise 2.0. Together, they represent the FLATNESSES model. Figure 2.3 depicts the FLATNESSES model, as described by (Hinchcliffe, 2007).

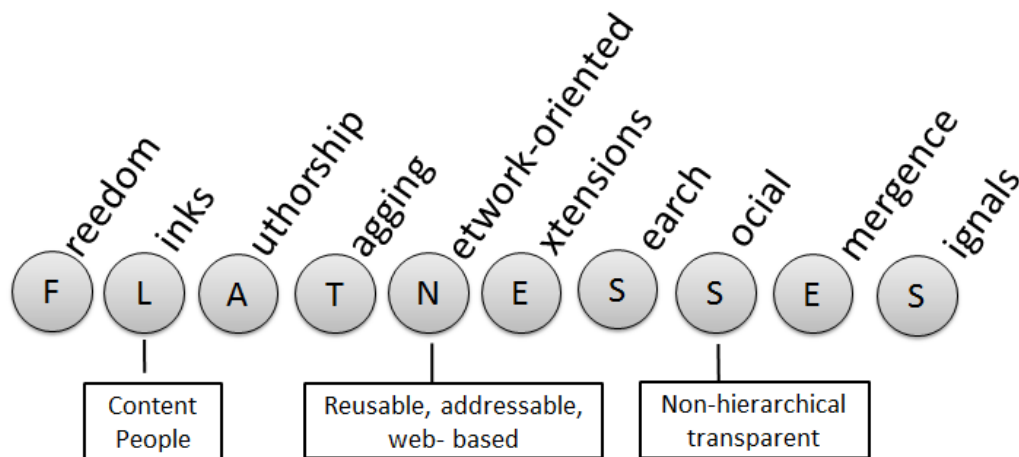


Figure 2.3 - FLATNESSES model

The four new elements introduced, include: social, emergent, network-orientation and freeform. The four additional elements address the social capability that is currently lacking in the SLATES model. The **social** element relates to the core of Enterprise 2.0, as a social web technology, enabling users to create, publish, share and distribute content freely and openly.

The **emergent** element relates to the constantly evolving and improving Enterprise 2.0 collaboration technology toolsets. As a result, the six SLATES elements are constantly improving and being enhanced. The **network-orientation** element describes Enterprise 2.0 collaboration technology tools as being accessible over the Internet. Enterprise 2.0 platforms are developed to encourage participation, by offering a number of **free-form** tools that evolve with time into more sophisticated Enterprise 2.0 environments.

The ten Enterprise 2.0 technology elements can also be expressed as a four-category model, known as the 4Cs approach (Cook, 2008). The 4Cs model, represented in Figure 2.4, depicts the relationship between Enterprise 2.0 technologies and critical business elements (Bin Husin and Swatman, 2010:277).

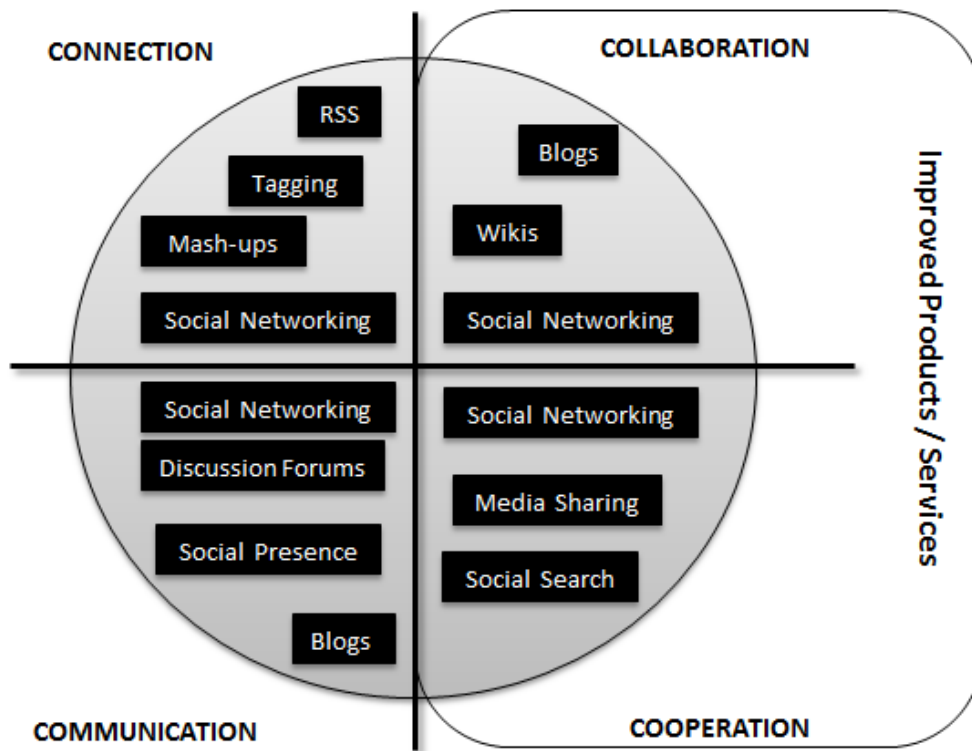


Figure 2.4 - The relationship between Enterprise 2.0 technologies and critical business elements

The four critical business elements include the following:

- **Communication** – represents the segment of Enterprise 2.0 collaboration technologies that can assist in improving communication inside and outside the enterprise environment. Social Networking, Tagging, Syndication and Mash-up’s Web 2.0 technology tools are commonly found and used in this category.
- **Cooperation** – represents the segment of Enterprise 2.0 collaboration technologies that can be used to create and distribute content inside and outside the enterprise environment. Social Search, Media Sharing and Social Bookmarking Web 2.0 technology tools are commonly found and used in this category.
- **Collaboration** – represents the segment of Enterprise 2.0 collaboration technologies that can be used to stimulate collaboration inside and outside the enterprise environment. Wikis are commonly found and used in this category.

- **Connection** – represents the segment of Enterprise 2.0 collaboration technologies that can be used to establish relationships inside and outside the enterprise environment. Blogs, instant messaging and discussion forum Web 2.0 technology tools are commonly found and used in this category.

Enterprise 2.0 should not only be viewed from a technology perspective, but also from a people perspective. By adopting Enterprise 2.0 collaboration technologies in an enterprise, end-users are able to establish community networks inside and outside the enterprise environment, thereby enabling end-users to establish relationships with customers, suppliers and partners (Christidis, Mentzas and Apostolou, 2011:32).

Enterprise 2.0 is the result of the maturity of technology over a number of years (Tapscott, 2006). Figure 2.5, adapted from Gotta (2007), depicts the evolution and maturity of enterprise connection and communication toolsets into collaboration and cooperation toolsets.

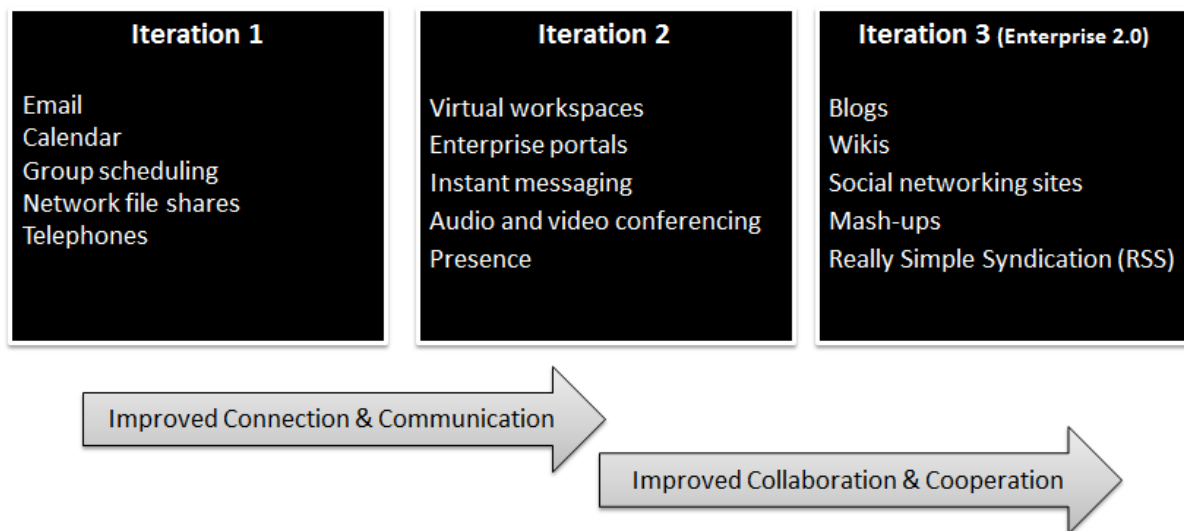


Figure 2.5 - The evolution of collaboration technologies

The first iteration of enterprise collaboration tools allowed enterprises to expand their communication and connection abilities predominantly by using electronic mail (email). The second iteration allowed for improved communication efficiency through virtual workspaces, instant messaging and audio and video conferencing. Currently, the third iteration, known as Enterprise 2.0, is regarded as the next level of communication maturity, presenting enterprises with toolsets to promote and adopt enterprise collaboration and cooperation both internally and externally.

2.3 Enterprise 2.0 benefits

Enterprise 2.0 collaboration technologies present enterprises with a significant amount of enterprise-wide benefits. When used effectively, Enterprise 2.0 collaboration technologies can encourage end-user participation in projects and idea-sharing, thus deepening an enterprise's pool of knowledge. They may bring greater scope and scale to organisations as well, strengthening bonds with customers and improving communications with suppliers and outside partners (Bughin and Chui, 2010).

Although the concept of Enterprise 2.0 collaboration is still relatively young, a number of authors and experts (e.g., Cook, 2008; Paroutis and Saleh, 2009; McAfee, 2006) have identified substantial benefits for enterprises in the following four dimensions:

- **Communication.** Enterprise 2.0 collaboration technologies have presented end-users with a number of new communication channels, including blogs, instant messaging, social networking, discussion forums and by so doing have enhanced the existing communication tools, such as electronic-mail, allowing users to collaborate and communicate across business boundaries in a more efficient manner.
- **Collaboration.** Enterprise 2.0 collaboration technologies have presented end-users with the ability to create, share and distribute content by using Web 2.0 technology tools such as social networking, wikis and blogs across business silos and functions, and by so doing enhancing the enterprise's underlying intellectual capital.

Enterprise 2.0 collaboration technologies have the ability to fast-track problem-solving in an enterprise. As the saying goes, 'Two heads are better than one'. By presenting multiple end-users with a single collaboration platform, enterprise end-users can brainstorm together to achieve a solution much faster, compared to the more conventional approaches (Matuszak, 2007).

- **Creativity.** Enterprise 2.0 encourages idea-generation, allowing users to post new ideas, receive feedback and mature ideas in an online environment. Traditionally, enterprises have made use of research and development departments or teams to drive innovation in the enterprise. Enterprise 2.0 collaboration technologies have presented enterprises with a

new platform, to allow all end-users to participate in the innovation process, thereby increasing creativity and innovation in the enterprise (Matuszak, 2007).

- **Sharing and transparency.** Enterprise 2.0 encourages and requires a culture of open collaboration within an enterprise. The objective is to present end-users with the information they require as and when needed and by so doing facilitating in the decision making process of business functions.

Furthermore, a number of authors have suggested four business-value propositions that can create value in an enterprise by adopting Enterprise 2.0 collaboration technology toolsets (Fu *et al.* 2009; Li, 2012). The four value propositions are described in Table 2.4.

Table 2.4 - Four business value propositions presented by Enterprise 2.0

Value Proposition	Overview
Encourage Sharing	<ul style="list-style-type: none"> • Create two-way dialogue • Reduces power distance to leaders • Connects globally, person by person
Capture Knowledge	<ul style="list-style-type: none"> • Identify expertise • Transfer knowledge • Improve best practices
Enable Action	<ul style="list-style-type: none"> • Solve problems first time round • Bring external parties together • Optimise business processes
Empower People	<ul style="list-style-type: none"> • Give employees a voice • Make meaningful contributions and innovations • Increase engagement, satisfaction and staff retention

2.4 Enterprise 2.0 challenges

Although Enterprise 2.0 collaboration technologies offer compelling collaboration benefits, many enterprises still face significant challenges in terms of adopting and promoting Enterprise 2.0 collaboration technologies (Reid, Gray and Honick, 2008; Fuchs-Kittowski *et al.*, 2009:377; Paroutis and Saleh, 2009).

A number of enterprises tend to approach the adoption of Enterprise 2.0 collaboration technologies from a technological perspective, as with most other Information Systems. However, Enterprise 2.0 is not about the technology, but rather about how users work and interact with each other. It is about finding new and effective ways to conduct business, improve collaboration, communication and participation, which can be enabled by the underlying technology toolset (Tan and Kondoz, 2008; Brzozowski, 2009). The technology by itself cannot change the enterprises corporate structures and enterprise culture; it requires a behavioural change (Davenport, 2007).

Back and Kock (2011:138) state that enterprises face two significant challenges with regard to the shift to Enterprise 2.0 collaboration technologies. The first is to devise a roadmap to Enterprise 2.0 technology adoption that brings about change and secondly, Enterprise 2.0 requires a continuous adoption and learning approach, in contrast to traditional enterprise information systems.

The challenges associated with the adoption and promotion of Enterprise 2.0 collaboration technology can be grouped in terms of either technological or organisational challenges. Bin Husin and Swatman (2010) identified the following five technological and organisational challenge categories, which are described as follows:

2.4.1 The change element

Users have established repetitive routines in using certain technologies on a daily basis; for example email, and they find it difficult to change or adapt to new forms and ways of using technology. Enterprise 2.0 collaboration technologies require a radical change in the work environment, organisational structures and business processes (Fuchs-Kittowski *et al.*, 2009:377, McAfee, 2006).

Furthermore, end-users are reluctant to participate and contribute towards content within an Enterprise 2.0 collaboration technology toolset, primarily due to the following reasons: a lack

of support from management, a lack of recognition from their peers, and a fear of investing time towards contributing to content, and then having other end-users not make use of the information. In addition, end-users also perceive Enterprise 2.0 collaboration technologies as an unstructured source of information, finding it difficult to navigate, find and relate content and information, often leading to information overload (Paroutis and Saleh, 2009).

Although, end-user reluctance to contribute forms a major barrier towards Enterprise 2.0 collaboration technology adoption, a lack of management participation also substantiates the reluctance to change. Management often perceive Enterprise 2.0 collaboration technologies as a social toolset, rather than a business enabling toolset, and are thus reluctant to invest or participate in any Enterprise 2.0 collaboration initiatives (Miles, 2011, McAfee, 2011).

2.4.2 The corporate culture element

Culture plays a significant role in technology adoption. Enterprise 2.0 collaboration technologies require a culture that promotes innovation, collaboration and participation (Riedl and Betz, 2012:4; Schöndienst *et al.*, 2011; Mansour, Abusalah and Askenas, 2011:85).

The culture of an enterprise plays a vital role in an enterprise's ability to adopt and exploit a new technology toolset. Culture can be described as a set of values, beliefs, behaviours and principles that form the basis of a particular group. The members of a group share the same assumptions; and together, they formulate an underlying culture to overcome problems (Denison, 1990).

As a group finds new and innovative ways to solve problems either to deal with threats, or to exploit opportunities, the group's culture adapts and changes. Thus, culture changes over time (Schein, 1990).

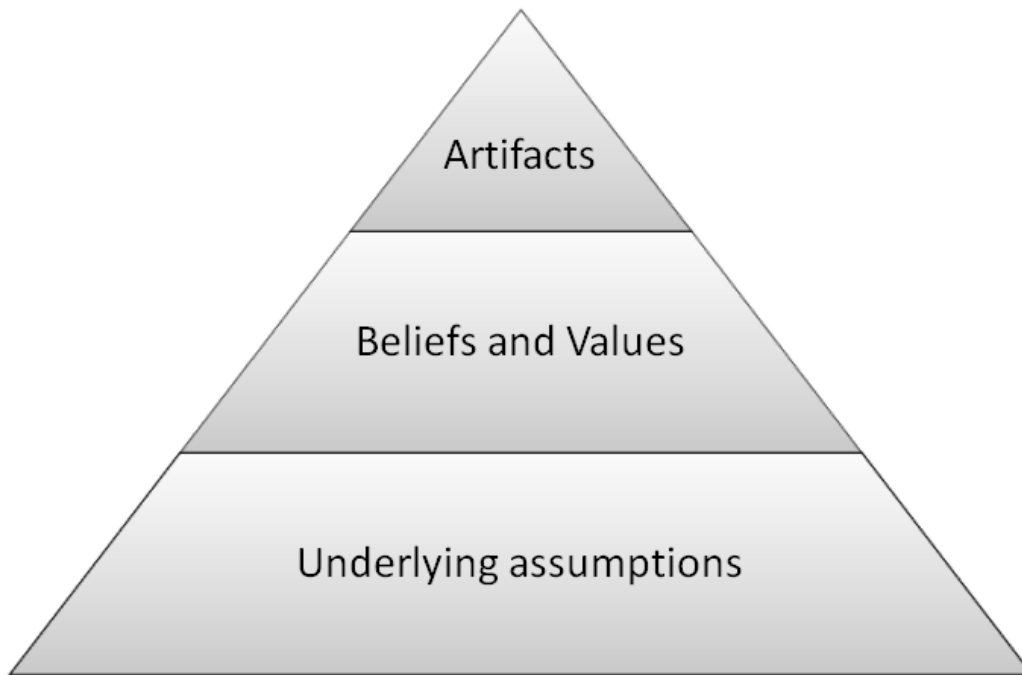


Figure 2.6 - Three levels of enterprise culture

Figure 2.6 depicts three levels of enterprise culture, as suggested by Schein (1990). The bottom layer of the pyramid represents the ‘underlying assumptions’ of an enterprise. They are very difficult to observe and analyse. This is the way in which employees carry out processes, express feelings and behave. The middle layer of the pyramid represents the ‘Beliefs and Values’ of an enterprise, while the top layer of the pyramid represents the most observable part of an enterprises culture, the ‘artifacts’.

Artifacts represent the enterprises formal dress code, the manner in which employees conduct themselves, the statements of philosophy and the annual reports. Artifacts are not a very reliable indicator of an enterprise’s culture; neither do they depict how employees behave under certain circumstances, when using a technology toolset.

From an Enterprise 2.0 collaboration technology-adoption perspective, the ‘underlying assumptions’ layer would determine how ‘open’ or ‘closed’ an enterprise culture is to adopting and promoting Enterprise 2.0 collaboration technology toolsets in the enterprise environment.

Hodgkinson (2007) identified a range of factors that could assist in determining whether an enterprise culture is either 'open' or 'closed'. These factors include:

- **Pressure to develop new products and services:** This relates to the drive towards innovation, in order to develop new products and/or services in an enterprise.
- **Customer/stakeholder intimacy:** This relates to the extent to which an enterprise strives to gain and sustain relationships with their customers.
- **Interrelatedness with other organisations:** The extent and manner in which an enterprise conducts business with its suppliers, customers and partners.
- **Reliance on creative processes to solve novel problems:** The extent to which an enterprise performs creative problem-solving.
- **Culture of abundance:** The extent to which an enterprise culture encourages a sense of competitiveness in the enterprise, as well as the drive to exploit any possible opportunities.
- **Brand and reputation flexibility:** The extent to which the enterprise values and protects its product and/or service brand.
- **Data anonymity:** The extent to which enterprise's need to maintain and protect both internal and external data and information.
- **Intellectual property openness:** The extent to which an enterprise exploits its intellectual property, in order to stimulate growth in the enterprise, as well as solving any problems.

Although the factors listed by Hodgkinson (2007) are able to assist us in determining how receptive an enterprise is to adopting a new technology toolset, based on the underlying enterprise's existing circumstances. The factors do not address the underlying behavioural factors required for adopting and promoting end-user acceptance of Enterprise 2.0 collaboration technology toolsets.

Recent studies suggest (e.g., Barron and Schneckenberg, 2012) that the following three behavioural factors, as described in Table 2.5, have the potential to determine whether or not end-users would be receptive to adopting Enterprise 2.0 collaboration technology toolsets.

Table 2.5 - Enterprise 2.0 adoption culture behavioural factors

Behavioural factor	Overview
Employee freedom to participate in corporate decision-making	Corporate governance has a strong influence on enterprise end-users' willingness to adopt Enterprise 2.0 collaboration technology toolsets. Enterprise 2.0 collaboration toolsets are more likely to be adopted where an enterprise culture promotes employee freedom to make decisions in a liberal environment (Schneckenberg, 2009).
Employee collaboration and knowledge exchange	Enterprises that promote corporate collaboration and knowledge sharing between employees, partners, suppliers and customers are more likely to succeed in adopting Enterprise 2.0 collaboration technologies.
Curiosity regarding new technologies	Enterprises that promote innovativeness and creativity within the corporate environment are more likely to succeed in adopting Enterprise 2.0 collaboration technologies. This form of enterprise culture leads to employee curiosity and enthusiasm to explore and adopt new forms of technology, as well as new ways of working.

Culture is a vast subject area; however, the research studies suggest that an enterprise that promotes knowledge sharing, encourages innovation and creativity would be more likely to succeed in their Enterprise 2.0 collaboration technology-adoption efforts, compared to enterprises with 'closed' cultures.

In addition to an 'open' culture, Enterprise 2.0 collaboration technologies require user acceptance and participation, in order to be successful (Soriano *et al.*, 2007; Alqahtani, Watson and Partridge, 2010:22).

2.4.3 The technology interest element

If there is no clear vision or strategic direction in terms of why a new type of technology should be used, this would lead to a low adoption rate. The vision, goals and benefits of Enterprise 2.0 collaboration technologies need to be communicated and clearly understood by all enterprise users (Hinchcliffe, 2008; Grossman and McCarthy, 2007:184).

Furthermore, enterprise decision-makers generally use the classical business case, incorporating return on investment (ROI) calculations to justify their investment in information systems. However, Enterprise 2.0 collaboration technologies offer intangible benefits, which are difficult to quantify, making ROI calculations more difficult to justify. As a result enterprises are reluctant to invest in Enterprise 2.0 collaboration technology toolsets

compared to other technology investments, for example in hardware, software, networking, etc. (McAfee, 2011).

2.4.4 The technology complexity element

According to Back and Koch (2011), enterprise decision-makers are often reluctant to invest and implement Enterprise 2.0 collaboration technology toolsets, due to the following technology complexity elements:

- **State of Enterprise 2.0 adoption**

Enterprise managers are faced with the challenge to incorporate an adoption strategy that allows for change control management within the enterprise, as well as to manage end-user Enterprise 2.0 collaboration technology toolset participation. Furthermore, collaboration technology toolsets are continuously evolving with new releases, presenting a challenge in keeping pace with the latest industry trends.

- **Project management**

Enterprise 2.0 collaboration technology implementation projects differ substantially from traditional software development projects. In order to deliver a successful, Enterprise 2.0 collaboration technology implementation, a fundamental change is required in the way end-users contribute, distribute and consume information. This requires an additional investment in training, cultural learning and governance disciplines within the enterprise.

- **Skill development for the workplace**

In order to fully utilise the business benefits and features of an Enterprise 2.0 collaboration technology toolset, enterprises need to invest in up skilling their end-users. Furthermore, the Enterprise 2.0 collaboration technology toolset support structure needs to be defined, addressing questions, such as: Who will provide technical support? Will support be provided internally or externally? Who will be our content owners?

- **Governance**

Enterprise 2.0 collaboration technologies differ significantly from traditional process-oriented enterprise information systems, such as enterprise resource planning (ERP) and others. Traditional enterprise information systems often have well defined policies and processes defined, either formulated over time, or derived from industry best practices.

In contrast, Enterprise 2.0 collaboration technologies require governance principles that align with the enterprises underlying collaboration, knowledge management and business information objectives. These governance principles, if not already in place would need to be formulated as part of the Enterprise 2.0 collaboration technology adoption strategy.

In addition, to the technology complexity issues presented above, Sani and Claus (2011) identify the following technology challenges with the McAfee (2006, 2009) SLATES model, contributing towards end-user technology complexity:

- **Information Overload** – *Searching* or discovering content needs to be related and relevant to the user's search criteria. Users should not be overwhelmed by unrelated information.
- **Isolation from other systems** – *Links* with other information systems need to be established to represent relationships between content. Mash-ups in this regard need to be exploited to their full potential.
- **Trust and data quality** – *Authoring*, content needs to be evaluated in terms of quality and relevance.

2.4.5 The security element

Information security and intellectual capital protection is vital to any enterprise. In addition, any technology that could expose an organisation to damage or the loss of information might be disregarded or restricted.

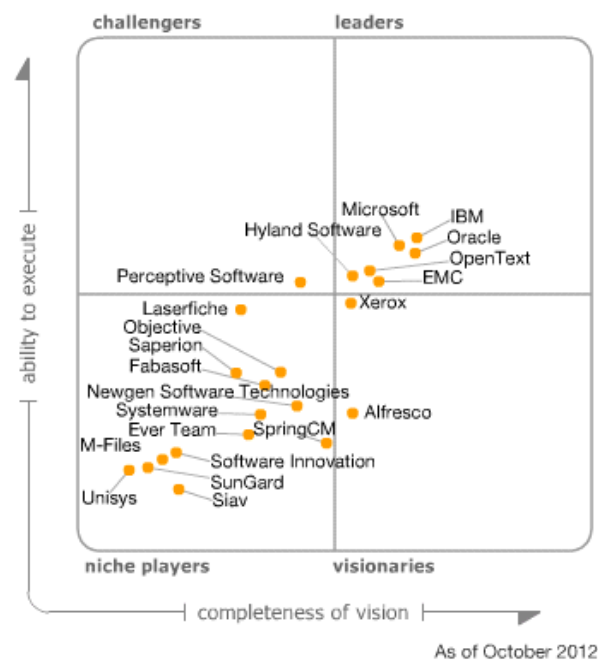
Enterprise 2.0 collaboration technology toolsets present enterprise end-users with a platform to interactively share content, contribute towards content, and consume content. This presents a significant business value proposition to the enterprise, however, controlling who can, and who cannot access content can be a challenging task. As a result enterprise decision-makers are often reluctant to invest or exploit collaboration technologies, primarily due to a fear of a loss of control over enterprise intellectual property (Almeida, 2012:153; Levy, 2007).

According to Almeida (2012), Enterprise 2.0 collaboration technology security concerns can be addressed and mitigated, by establishing an enterprise information system security policy. The policy should describe acceptable, as well as unacceptable usage of an Enterprise 2.0

collaboration technology toolsets. Furthermore, end-user information security awareness should be created by conducting regular information security training sessions.

2.5 Collaboration toolset leaders

A number of Enterprise 2.0 collaboration technology toolsets exist in the market. Gartner annually produces an Enterprise Content Management (ECM) magic quadrant analysis of Enterprise 2.0 collaboration technology toolsets. The magic quadrant analysis consists of four quadrants, namely: Leaders, Challengers, Visionaries and Niche players. Figure 2.6 depicts the latest Gartner Enterprise Content-Management magic quadrant analysis, conducted in 2012 (Gilbert *et al.*, 2012).



Source: Gartner (October 2012)

Figure 2.7 - Gartner Enterprise Content-Management magic quadrant

Leaders - Leaders refers to vendors who have established themselves as market leaders in a selected market space. Leaders can be described as vendors who consistently achieve financial performance and growth. In essence, they can be described as the best-of-breed in a selected market space.

Challengers - Challengers offer good functionality; however they still lack the vision and execution ability of those vendors in the leader's quadrant.

Visionaries - Visionaries offer similar capabilities as do other vendor leader toolsets; however, they have less ability to execute than vendors operating within the leaders' and challengers' quadrants.

Niche players - Niche players typically focus on specific elements of enterprise content management technology toolsets. This quadrant generally includes vendors still maturing their enterprise content management toolsets.

Gartner identifies the following Enterprise 2.0 collaboration technology toolset leaders; they include: IBM WebSphere, Oracle WebCenter, Microsoft SharePoint, EMC, OpenText and Hyland Software (Gilbert *et al.*, 2012). The leaders are briefly described in Table 2.6.

Table 2.6 - Gartner enterprise content management leaders

Enterprise 2.0 collaboration technology toolset	Toolset overview
IBM WebSphere	The IBM WebSphere Portal Enterprise 2.0 collaboration toolset was one of the first collaboration toolsets to enter the market. A number of large enterprises have invested in the IBM WebSphere toolset due to its highly scalability nature.
Oracle WebCenter	The Oracle WebCenter collaboration toolset embodies a number of Web 2.0 collaboration technology tools such as content management, enterprise search, and social software collaboration and communication services. The biggest differentiator of the Oracle WebCenter collaboration toolset is Oracle's commitment to highly Software Oriented Architecture (SOA) solutions.
Microsoft SharePoint	The latest version of Microsoft SharePoint, Microsoft SharePoint 2013 encapsulates a number of Web 2.0 technologies, allowing knowledge workers to create, collect, organise and collaborate on various forms of content in a web-based environment.
OpenText	OpenText are regarded as the leaders in the Enterprise Information Management (EIM) market space. Their toolsets are highly optimised for content management and content searching. However, they lack the social and collaboration elements compared to the other toolsets in the leader's quadrant.
EMC	EMC have focused their research and development efforts on providing a cloud based content management solution, known as EMC OnDemand. The EMC OnDemand service allows enterprises to conduct end-to-end content management, without investing in any infrastructure.
Hyland Software	Hyland software provides services to medium-sized enterprise customers in North and South America. The biggest differentiator of the Hyland software collaboration toolset is its ability to integrate with other Information systems.

2.6 Chapter summary

This chapter has introduced Web 2.0, Enterprise 2.0 as well as the concept of enterprise collaboration. In addition, the chapter has highlighted the link and differences between Web 2.0 and Enterprise 2.0. The benefits, as well as the challenges pertaining to Enterprise 2.0 collaboration technology toolsets have been identified; and the chapter concluded with an introduction to collaboration technology toolset leaders. Furthermore, the chapter also partially answers two of the supporting research questions, including:

- **What challenges do enterprises currently face when adopting Enterprise 2.0 collaboration technologies?** The literature review suggests that the challenges associated with the adoption and promotion of Enterprise 2.0 collaboration technology can be grouped in terms of either technological or organisational challenges. Five (5) adoption-challenge elements were presented, the change element, the corporate-culture element, the technology-interest element, the technology- complexity element, and the security element.
- **What are the challenges in using Enterprise 2.0 collaboration technologies within an enterprise environment?** The literature review suggests that the key challenges relate to technology complexity. For example, information overload has been highlighted as a key challenge. Users should not be overwhelmed by unrelated information. Furthermore, the quality of content needs to be reviewed, authoring, content needs to be evaluated in terms of quality and relevance.

Chapter 3 - Enterprise 2.0 Adoption Models and Strategies

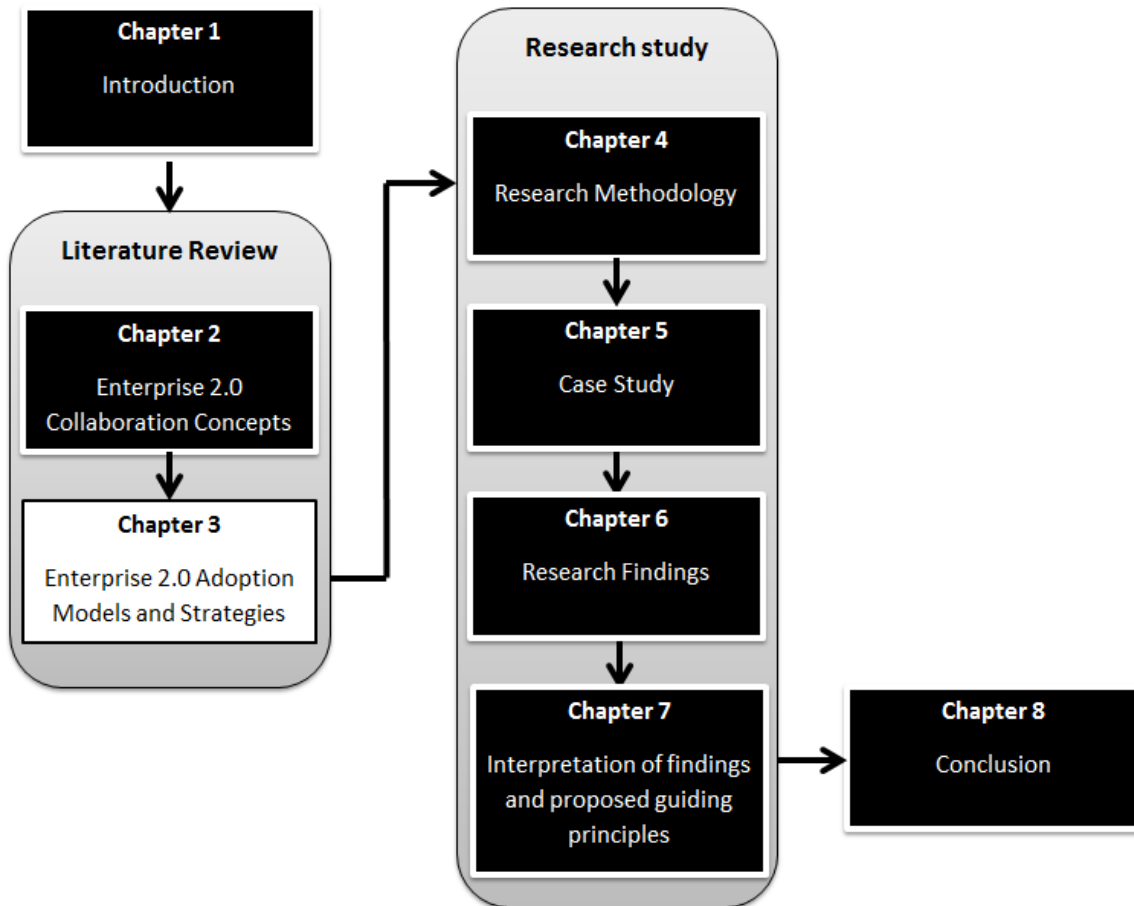


Figure 3.1 - Chapter progression

3.1 Introduction

This chapter consists of five sections. Section 3.2 provides a systematic review and comparison of the existing technology-adoption models. Section 3.3 presents a review of existing maturity models, as well as those adapted to Enterprise 2.0 collaboration technologies. Section 3.4 provides a review of the existing adoption strategies and frameworks applied to Enterprise 2.0 collaboration technologies. In conclusion, Section 3.5 presents a review of the critical success factors that are considered vital in adopting and promoting Enterprise 2.0 collaboration technologies.

3.1.1 Chapter contribution towards the research study

The primary objective of this literature review chapter is to provide a review of the previously studied and applied maturity models, adoption strategies and frameworks. In addition, the technology adoption models are reviewed and compared. The literature review presents a number of elements that should be incorporated into an Enterprise 2.0 collaboration technology-adoption strategy. Furthermore, the chapter assists in partially answering two of the supporting research questions:

- What are the critical success factors, for adopting and promoting Enterprise 2.0 collaboration technologies?
- What are the generic guiding principles for adopting and promoting Enterprise 2.0 collaboration technologies?

3.2 Technology adoption models

A number of technology adoption models have been proposed during the last three decades, in order to improve the adoption of information technology systems. It is, therefore, important to conduct a systematic review of the existing adoption theories and models previously studied, as well as their applicability in the adoption of Enterprise 2.0 collaboration technology toolsets.

The ‘Diffusion of Innovations’ theory first proposed by Rogers (2003), is highly regarded as one of the more popular technology adoption theories. The ‘Diffusion of Innovations’ theory consists of four main elements that either promote individual and enterprise acceptance, or discourage the adoption of a technology toolset.

The first element ‘innovation’ refers to the perceived newness characteristics of a technology toolset, the prospects of new benefits for both the individual and enterprise. The second element ‘communication channels’ is the process whereby participants generate and share content with one another to achieve a mutual understanding. The third element ‘time’ relates to the rate at which individuals and enterprises adopt a technology toolset. Lastly, the fourth element ‘social system’, could be described as a set of interrelated units that encourage a joint problem-solving culture, in order to attain a common goal.

Rogers (2003) identified five different types of technology adopter categories, based on their innovativeness. These include: innovators, early adopters, early majority, late majority and laggards. Figure 3.2, depicts the distribution of adopters based on their level of innovativeness.

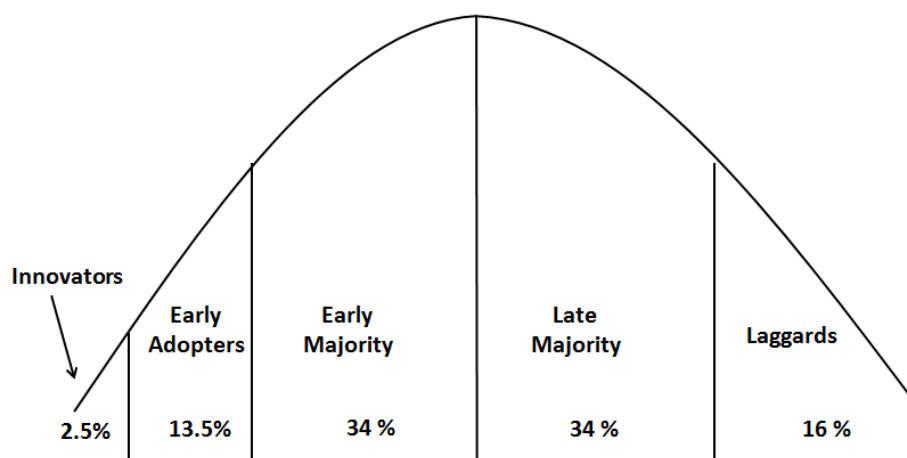


Figure 3.2 - Adopter categorisation based on innovativeness

‘Innovators’ represent the smallest percentage of the enterprise population 2.5%; they are usually the end-users who are willing to experiment and try new ideas. End-users in this category generally have a tremendous amount of technical expertise.

The second category, ‘Early Adaptors’, consists of end-users who tend to fill leadership roles. They constitute 13.5% of the enterprise population. Their attitude towards innovation either drives innovation and adoption within the enterprise, or it leads to the rejection of innovation in the enterprise.

The third category, the ‘early majority’ constitutes 34% of the enterprise population. Their decision to adopt an innovation takes longer than end-users in the innovator’s category and the early adoption category. They are neither the first nor the last to adopt however, they tend to adopt the innovation just before the second half of the enterprise end-users adopt the innovation.

The fourth category, the ‘late majority’ constitutes 34% of the enterprise population as well. This category represents end-users who would rather sit on the fence, so to speak, while waiting for other enterprise end-users to make the adoption decision.

The last category, ‘laggards’, constitutes 16% of the enterprise population. They are the most sceptical in adopting new innovations. They follow a conservative approach towards adopting any new form of innovation and they tend to decide only after the majority of the enterprise has adopted an innovation.

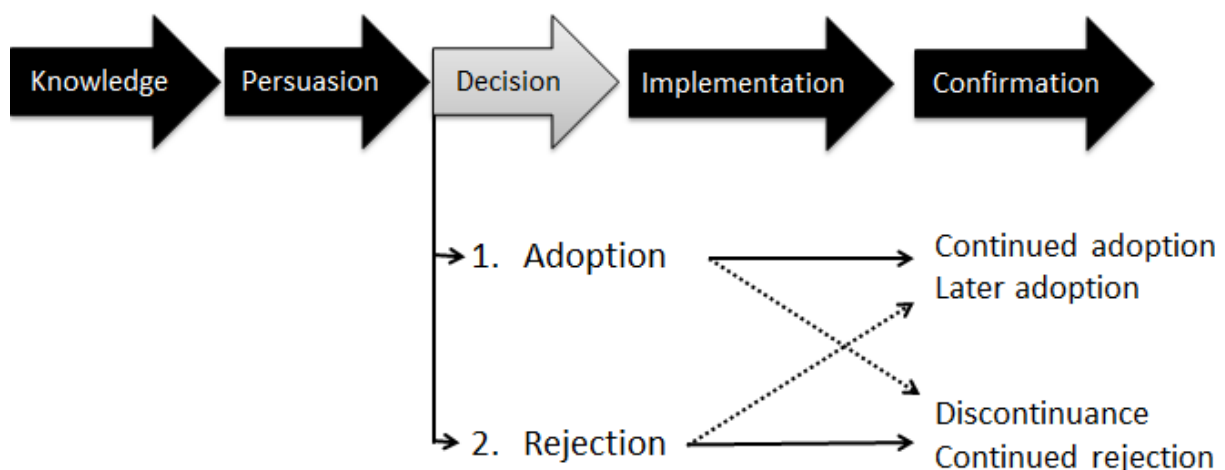


Figure 3.3 - Five stages of the Innovation-Decision Process

According to Rogers (2003), the innovation-decision process can be described as “an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation”. Figure 3.3 depicts the innovation-decision process, which consists of five sequential steps, namely: knowledge, persuasion, decision, implementation and confirmation. These five steps are presented in Table 3.1.

Table 3.1 - Innovation-decision process steps

Information-decision process step	Overview
Knowledge	Within the knowledge stage, individuals address the question: What is innovation and how does it work? The knowledge gained helps motivate individuals to learn more about the innovation, thereby promoting adoption.
Persuasion	Within the persuasion stage, the individual forms either a positive or a negative attitude to the innovation. The individual forms his or her attitude towards the innovation, based on the knowledge gained.
Decision	Within the decision stage, the individual chooses either to adopt, or to reject the innovation. The individual may make a decision to continue to adopt the innovation, or to discontinue adopting the innovation, implying a tendency to reject the innovation after adopting it. The individual may also decide to continue to reject the innovation, or to adopt the innovation at a later stage.
Implementation	During the implementation stage, the innovation is put into practice. Innovation brings about change; thus, the implementation stage has some degree of uncertainty. It is important that during this stage, the implementer makes use of technical assistance, in order to bring about change in the enterprise.
Confirmation	Within the confirmation stage, the individual seeks support based on his or her decision. Depending on the support provided to adopt, the innovation may lead to continued adoption, or to the discontinuance of the innovation.

The ‘Diffusion of Innovations’ theory relates closely to an enterprise’s underlying culture. The more ‘open’ an enterprise culture is to innovation, the more likely a new technology toolset would be accepted; and the same applies for the converse; the more ‘closed’ an enterprise culture is, the more likely it would be for a new technology toolset to be rejected.

Although culture plays a significant role in technology adoption, it is also important to review technology factors that contribute to technology acceptance. The Technology Acceptance Model (TAM), first developed by Davis in 1989 has been extensively studied in terms of

information system (IS) adoption. TAM adopts two primary perspectives to the use of new technology, namely: the perceived usefulness and the perceived ease of use. The TAM model is based on the assumption that the easier the technology is to use, the greater the acceptance and use of the technology would be (Davis, 1989).

Venkatesh and Davis (2000) extended the TAM model; this is then referred to as TAM 2. The TAM 2 model considered two additional perspectives; the social influence process and the cognitive instrument process, which could also influence the perceived usefulness of technology. The TAM 2 model assumes voluntariness with regard to technology adoption, as opposed to an obligation to use the technology (Wu *et al.*, 2008:1478).

TAM has been extensively studied in terms of information system (IS) adoption, as well (Dwivedi *et al.*, 2011; Van Raaij and Schepers, 2008; Legris, Ingham and Collerette, 2003; Orehovacki, 2010). Although the technology acceptance model addresses the perceived usefulness and ease of use of a technology toolset, it does not address the benefits and costs associated with investing in a technology toolset. The value-added model (VAM) does however address these two elements. VAM is based on the cost-benefit trade-off approach, which weighs the perceived benefits against the costs of achieving those benefits (Kim, Chan and Gupta, 2007).

Research conducted on the VAM model concludes that if the perceived benefits of Enterprise 2.0 collaboration technologies outweigh the costs (i.e. financial investment, risks/information leakage, loss of control of the system, ethical issues, etc.), there would be a positive attitude to adopting Enterprise 2.0 technologies (Lin, Lee and Lin, 2010; Lee, 2009:55).

The technology adoption models presented above have been applied and tested during the last few decades, in a number of Information System (IS) selection processes, as well as implementations, addressing elements, such as the perceived ease-of-use, identifying the underlying costs and benefits, identifying end-user and enterprise attitude to technology acceptance or rejection. They do not, however, address the end-user motivation elements required to sustain Enterprise 2.0 technology adoption in an enterprise.

3.3 Maturity models

In addition to the technology-adoption models reviewed in Section 3.2, a number of maturity models have been applied and adapted to facilitate the adoption of Enterprise 2.0 collaboration technology toolsets. According to Back and Koch (2011), maturity models provide enterprises with a framework and associated guidelines, in order to conduct self-assessments, readiness assessments, and benchmarking, as well as an instrument to measure continuous improvement, in adopting Enterprise 2.0 collaboration technology toolsets.

The term maturity model was coined by the Software Engineering Institute (SEI), when they developed the initial Capability Maturity Model (Paulk *et al.*, 1993). The objective of a maturity model is to assist an enterprise in evaluating and measuring their effectiveness when applying a technology toolset, along with the relevant business processes.

Several maturity models have been proposed and adapted during the last few decades, focusing on different business elements in an enterprise. The following three subsections will provide a review of the previously studied and adapted maturity models in relation to Enterprise 2.0 collaboration technology adoption.

3.3.1 The Capability Maturity Model Interoperability (CMMI)

CMMI is a variation of the Capability Maturity Model (CMM), initially introduced by the Software Engineering Institute (SEI) in 1993 (Paulk *et al.*, 1993). CMMI allows enterprises to establish a roadmap for the adoption of Enterprise 2.0 collaboration technology toolsets, as well as to define interoperability practices (Santos *et al.*, 2008).

CMMI provides a framework that allows enterprises to measure and mature their business processes, to improve software development and information systems, as well as to maintain and enhance their business products and services (Paulk *et al.*, 1993). Figure 3.4 depicts the five CMMI maturity levels (Santos *et al.*, 2008).

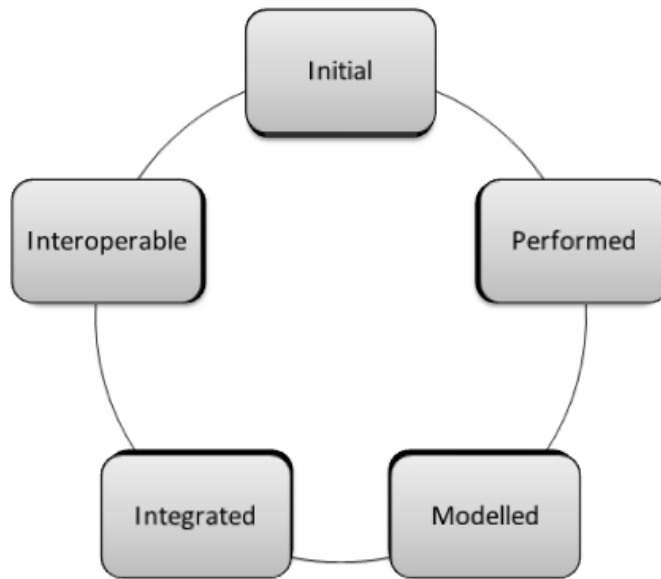


Figure 3.4 - CMMI five maturity levels

In the ‘**Initial**’ level, no formal processes have yet been defined; however, the enterprise is actively involved in collaboration practices. In the ‘**Performed**’ level, the informal definitions of strategies and processes on a departmental or project level are defined.

In the ‘**Modelled**’ level, the business processes have been formalised throughout the enterprise. New products and services are developed and launched through collaboration activities. In the ‘**Integrated**’ level, inter-enterprise integration and collaboration practices have been established between enterprise partners, suppliers and customers, allowing for improved products and services. Lastly, in the ‘**Interoperable**’ level, continuous evaluation and improvement of collaboration practices are to be found.

3.3.2 The Enterprise Collaboration Maturity Model (ECMM)

According to Alonso *et al.* (2010), the CMM and CMMI models focus on measuring and assessing the enterprise business process and interoperability; whereas, the Enterprise Collaboration Maturity Model (ECMM) allows us to define and assess enterprise collaboration maturity. The ECMM consists of four maturity levels, each of which improving the enterprise’s ability to relate to enterprise collaboration Figure 3.5 depicts the four ECMM maturity levels (Alonso *et al.*, 2010).

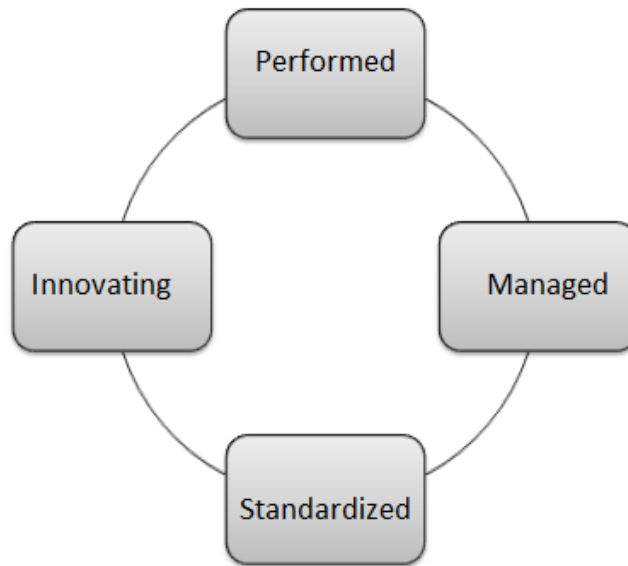


Figure 3.5 - ECMM four maturity levels

In the ‘**Performed**’ level, collaboration occurs between external business silos and enterprises; however this only occurs on an ad-hoc basis. Enterprises within this maturity level are unsuccessful in repeating their initial success. In the ‘**Managed**’ level, enterprises are able to create a management foundation for collaboration. Furthermore, an enterprise collaboration toolset is selected and used in this maturity level.

In the ‘**Standardized**’ level, the objective is to establish a common business strategy, as well as to standardise the business processes in order to repeat past successes. Lastly, in the ‘**Innovating**’ level, the objective is to exploit the capability of the enterprise collaboration toolset, as well as to achieve predictable results with controlled variations. In addition, there is a sense of continuously improving the enterprise’s collaboration capabilities.

3.3.3 The Collaboration Engineering Maturity Model (CEMM)

According to Santanen, Kolfshoten and Golla (2006), the CEMM focuses on continuously improving and sustaining enterprise collaboration, compared to the CMMI and ECMM. CEMM encapsulates five phases, namely; the Field Interview, Design, Transition, Practitioner Implementation, and finally, the Sustained Organisational use phase.

In addition to the five phases, four maturity levels exist, including the Provisional, Predictable, Managed, and Optimised maturity levels. Figure 3.6 depicts the CEMM maturity levels (Santanen, Kolfshoten and Golla, 2006).

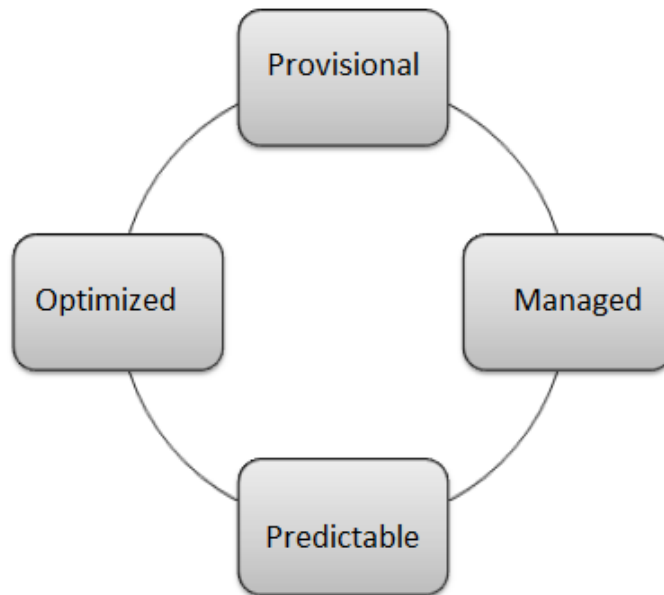


Figure 3.6 - CEMM four phases

In the ‘**Provisional**’ level, collaboration processes have been implemented, however, they are carried out in an *ad-hoc* manner. In the ‘**Managed**’ level, strategic objectives are defined for the five phases: Field Interview, Design, Transition, Practitioner Implementation, and finally the Sustained Organisational level.

In the ‘**Predictable**’ level, the collaboration processes have been refined and documented, allowing the enterprise to formulate its building blocks for anticipated outcomes. Lastly, in the ‘**Optimized**’ level, the collaboration processes have been formally defined and implemented.

Although the three maturity models presented within this section have been proposed and adapted to Enterprise 2.0 collaboration technology toolsets, they tend to be process refinement-oriented, rather than being collaboration-oriented. Furthermore, they do not address the motivational and sustainability elements required for promoting and sustaining Enterprise 2.0 collaboration technology adoption.

3.4 Adoption strategies and frameworks

An alternative approach to adoption maturity models has been to formulate adoption strategies. An adoption strategy can be either top-down or bottom-up initiated. Zeiller and Schauer (2011) conducted six case studies on a number of small-to-large enterprises in

Germany; and they found that enterprises tend to be more successful in their Enterprise 2.0 collaboration technology adoption initiatives if a top-down approach is followed, as opposed to a bottom-up approach.

In contrast to the top-down approach, Enterprise 2.0 collaboration technology adoption requires mass participation, which can only be achieved using a bottom-up or hybrid approach (Raeth *et al.*, 2010; Alqahtani, Watson and Partridge, 2010:7; Chui, Miller and Roberts, 2009:3).

Chui, Miller and Roberts (2009) found that by adopting Enterprise 2.0 collaboration technologies using a hybrid approach, there is a much shorter time before productivity is achieved, in comparison to traditional information system-adoption approaches, which tend to be top-down initiated. Figure 3.7 depicts the relationship in terms of productivity between traditional information systems versus Enterprise 2.0 collaboration technologies (Chui, Miller and Roberts, 2009).

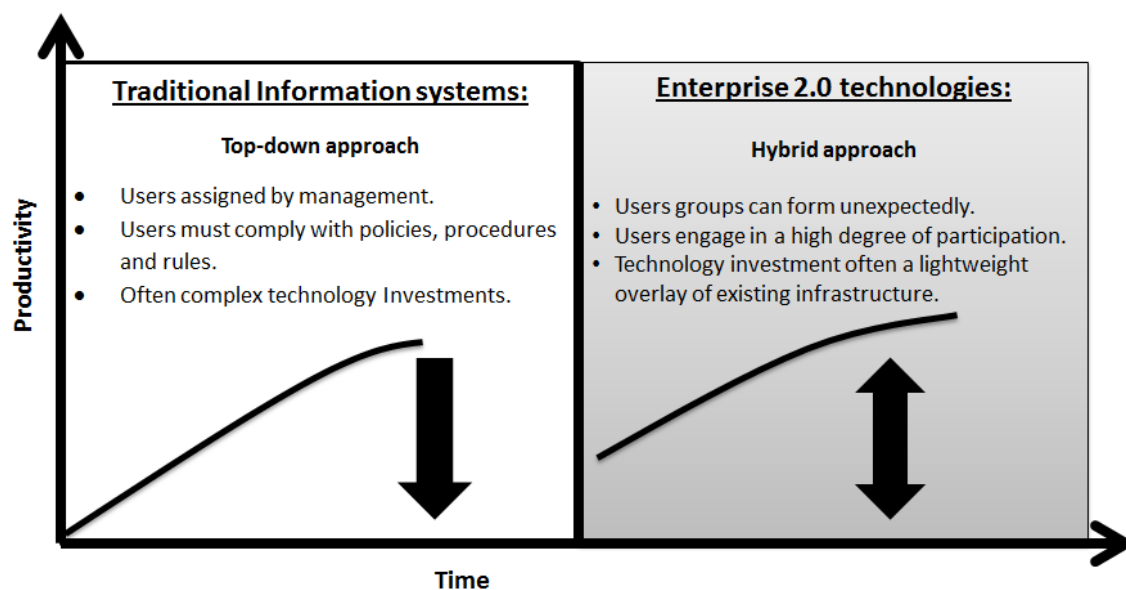


Figure 3.7 - Traditional IS versus Enterprise 2.0 productivity-relationship diagram

Wijaya, Spruit and Scheper (2008), suggest that the first point of departure in terms of an adoption strategy is to formulate a web strategy. The objective of a web strategy is to assess the current 'as-is' web strategy of the enterprise as well as to provide a roadmap to the desired 'to-be' position of the enterprise. Furthermore, a web strategy should include five formulation phases, as described in Table 3.2.

Table 3.2 - Web-strategy formulation phases

Phase	Overview
Phase 1 – Awareness	This phase can also be described as the gathering phase. In this phase, information pertaining to the enterprise’s business strategy, business requirements, maturity, compared to those of the competitors’, strengths, weaknesses, opportunities and threats should be reviewed and analysed. In addition, an assessment should be conducted to determine enterprise awareness of Enterprise 2.0 collaboration technology toolsets and the benefits.
Phase 2 - Anticipation and Assessment (As-Is)	In this phase, the current Enterprise 2.0 collaboration technology implementation is assessed, if any. The objective is to highlight any issues and problems with the current Enterprise 2.0 collaboration technology toolset implementation.
Phase 3 - Formulation of Direction (To-Be)	In this phase, the desired future state of the enterprise’s Enterprise 2.0 collaboration technology toolset is defined. A gap analysis can be used to define any shortcomings. During this phase, it is important to identify and assess the Enterprise 2.0 principles and features that need to be incorporated, as this would give direction to the desired state.
Phase 4 - Web Strategy Development	In this phase, the proposed web-strategy needs to highlight the important concepts and features that are missing from the existing Enterprise 2.0 collaboration technology implementation, as well as the additional features and principles that need to be applied, in order to achieve the future goal state. A gap analysis should be used in this phase to present the shortcomings.
Phase 5 - Evaluation	In this phase, the proposed web-strategy is aligned to the existing business strategy, to ensure that business requirements are met.

In addition to selecting an appropriate adoption strategy, either top-down, bottom-up, or hybrid, an associated adoption framework needs to be formulated. Iverson and Vukotich (2009) suggest that a web-strategy framework should also address four essential elements, in order to ensure success. The four elements constitute phases within a suggested web-strategy framework. Figure 3.8 depicts the four web-strategy elements, crucial for a successful Enterprise 2.0 collaboration technology implementation and adoption initiative (Iverson and Vukotich, 2009).

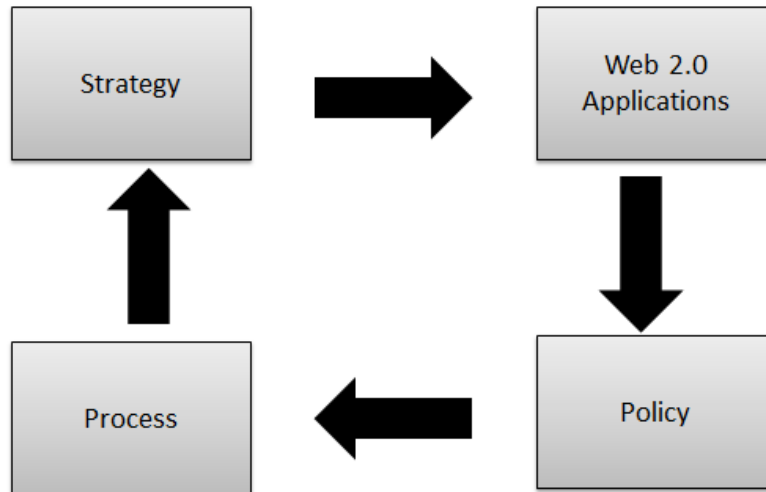


Figure 3.8 - Web 2.0 Implementation Framework

The first phase, ‘**Strategy**’, should describe how the Enterprise 2.0 collaboration technology toolset would contribute to the enterprise’s vision, mission, objectives and goals. Information gathered during this phase through action research would allow the enterprise to determine the features, functions and specifications required from an Enterprise 2.0 collaboration technology toolset.

In the second phase, ‘**Applications**’, the Web 2.0 technology tools that make-up an Enterprise 2.0 collaboration technology toolset need to be identified. Elements such as collaboration, connectivity, communication and co-creation should be addressed.

In the third phase, ‘**Policy**’, the policies that should guide the implementation, as well as the management of the Enterprise 2.0 collaboration technology toolset need to be identified and formulated. During this phase, elements, such as organisational structure, incentives for participation, metric, change, and programme management need to be addressed.

In the fourth phase, ‘**Process**’, one needs to consider how end-users would be interacting with the proposed Enterprise 2.0 collaboration technology toolset. Elements, such as the extent of freedom granted, accessibility, usability, content creation, and distribution need to be addressed.

Furthermore, Carr (2011) suggests seven key web-strategy elements, that can also assist in formulating an Enterprise 2.0 collaboration technology adoption strategy, as described in Table 3.3.

Table 3.3 - Web-strategy adoption elements

Web Strategy Element	Overview
Purpose	As with most strategic objectives, the enterprise needs to define its vision, goals and objectives for collaboration. A roadmap needs to be defined, and gaps identified to ensure future successes. A vision statement can be used to communicate and outline the chosen strategy purpose and intension.
Governance	In order to ensure a successful Enterprise 2.0 collaboration technology implementation and sustainable end-user adoption, a governance framework needs to be established. The governance framework should encapsulate the policies, procedures, operational documentation, roles and responsibilities for the Enterprise 2.0 collaboration environment.
People and Objectives	It is of vital importance to ensure that all support teams, processes and content owners are identified as soon as possible, in order to ensure ownership of the Enterprise 2.0 collaboration environment.
Requirements and Analysis	A formal requirement-and-analysis process needs to be defined and applied. Any new changes to the Enterprise 2.0 collaboration technology environment need to be defined in terms of functional and non-functional requirements, analysed, categorised and prioritised in line with the chosen web-strategy.
Information Architecture	Information-architecture consists of two sub-components: information and content. The following questions need to be answered. How much data would we be storing? What type of data will we be storing? How long will the data be stored? The second component relates to access. The following questions need to be answered: Who will have access to which information? What type of access is required? Read, Write, Delete, etc.
Technology	An Enterprise 2.0 collaboration technology toolset needs to be chosen. The hardware and software support structures need to be implemented, for example, whether the technology will be supported internally or outsourced to a third party vendor. The following questions need to be answered. How will the security be controlled? Who will be performing support, maintenance and enhancements?
Maintenance and Enhancements	A formal change-control framework and the underlying processes need to be put in place. The framework should address how maintenance will be treated; how the changes will be implemented, and how the enhancements will be chosen and prioritised?

Several other implementation frameworks have been proposed, incorporating elements such as the underlying strategy, policies, processes and governance (Iverson and Vukotich, 2009:48; Back and Koch, 2011:138; Baxter *et al.*, 2011). A more recent framework that encapsulates the very essence of Enterprise 2.0 collaboration technology adoption is the 8C's framework (Williams, 2011).

The 8C's framework was developed, in order to analyse and evaluate Enterprise 2.0 collaboration technologies against an enterprise's underlying information-architecture. The framework consists of eight elements, organised into an inner and outer zone, as depicted in Figure 3.9.

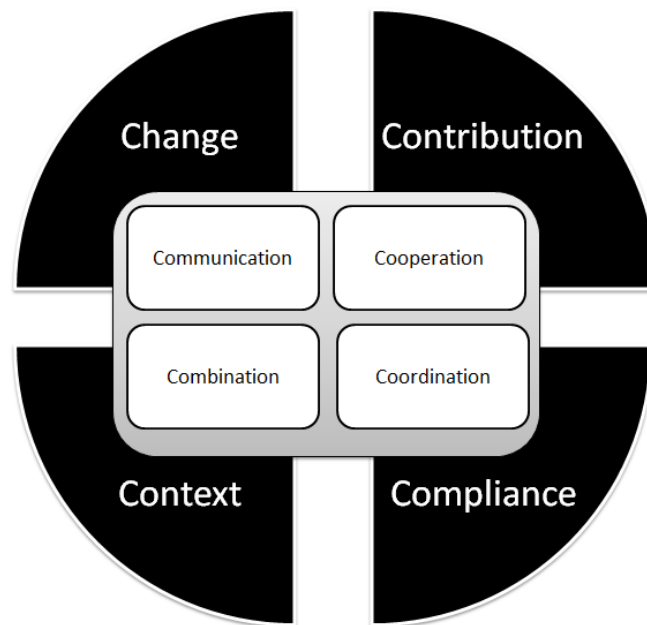


Figure 3.9 - 8C's Framework for enterprise information management

The inner core elements were refined and adapted from the 4C's model presented by Cook (2008). They include (communication, cooperation, combination and coordination), and are specific to identifying and measuring project goals. The inner core elements focus on the business activities and collaborative technology tools currently being implemented.

The **Communication** inner core element entails the exchange of messages between end-users, either directly (e.g. voice chat using Skype or Microsoft Lync) or indirectly, an end-user posting a blog, which can be read by other end-users at a later stage. The **Cooperation** inner core element is similar to collaboration; an example includes end-users working on various project tasks independently, but delivering the project artefact as a whole once the project has been concluded. An Enterprise 2.0 collaboration technology document library and task list library could be used in this regard.

The **Coordination** inner core element refers to the activities and processes that facilitate the coordination and management of tasks between end-users: for example, conducting

brainstorming sessions, workshops and project status meetings. An Enterprise 2.0 collaboration technology workspace or team site could be used in this regard.

The **Combination** inner core element can be regarded as the central point where all collaboration activities are managed. An Enterprise 2.0 collaboration technology workspace or team site could be used in this regard. RSS feeds and Alerts could be used to keep team members up to date on the project's progress.

The inner core can be seen as people-and-information oriented. The communication and collaboration elements focus on elements that allow end-users to communicate and work as a team; while the coordination and combination elements focus on those elements that support the creation and management of information content.

The outer core elements (change, contribution, content and compliance) represent the wider enterprise aspects. They tend to focus on the managerial elements. The **change** element focuses on bringing about change through a formal enterprise change management process, and ensuring compliance to existing enterprise standards. The **content** and **compliance** elements ensure that content published in an Enterprise 2.0 collaboration technology toolset meets the underlying enterprise-compliance frameworks. Lastly, the **contribution** element relates to the identification and measurement of costs and benefits associated to with underlying project initiatives, as well as the management thereof.

The adoption-strategy elements and underlying framework-formulation elements presented in this section have been applied and adapted to Enterprise 2.0 collaboration technology toolset adoption initiatives. They present a number of underlying guiding principles, including strategy formulation and alignment, governance and change management, as well as the underlying roles and responsibilities.

Unfortunately, they do not address the motivational and sustainability elements required for promoting and sustaining Enterprise 2.0 collaboration technology adoption. In addition to a well-structured adoption strategy, it is important to review and incorporate the critical success factors vital for a successful Enterprise 2.0 collaboration technology adoption initiative.

3.5 Critical success factors

A well-formulated adoption strategy and framework can be very effective in implementing an Enterprise 2.0 collaboration technology toolset; however, they do not necessarily address the sustainability elements for promoting and adopting Enterprise 2.0 collaboration technology toolsets. Sustainability is essential in a successful Enterprise 2.0 collaboration technology toolset adoption strategy in an enterprise.

This implies that Enterprise 2.0 success requires that usage becomes the norm, and not the exception (Cummings, Massey and Ramesh, 2009). The underlying value of Enterprise 2.0 collaboration technology toolsets can only be exploited by active and continuous end-user participation (Tredinnick, 2006). Bruno, Marra and Mangia (2011) provide us with the following three guidelines that are essential for a successful Enterprise 2.0 collaboration technology adoption initiative. They include:

- **Follow a top-down and bottom-up approach.** It is essential to have top management driving the Enterprise 2.0 collaboration adoption process, which guarantees adherence to the chosen web strategy. However, it is also essential to allow end-users the necessary autonomy to be creative, since this allows for innovation. Thus, a hybrid approach is essential for Enterprise 2.0 collaboration technology adoption.
- **Define responsibility.** It is important to define the roles-and-responsibilities up front. The question around ownership, and who is ultimately responsible for the integrity and authorisation of content needs to be determined.
- **Highlight authorship.** To ensure that high quality content is produced, the underlying authors need to be acknowledged and identified.

As with most information systems, Enterprise 2.0 collaboration technology toolsets require governance and change-control mechanisms. De Hertogh, Viaene and Guido (2011) suggest four grounding principles towards Enterprise 2.0 collaboration governance. Table 3.4 describes each grounding principle.

Table 3.4 - Grounding principles in Enterprise 2.0 collaboration governance

Grounding Principles	Overview
Empowerment	In order to simulate a culture of collaboration in an enterprise, enterprises need to apply less predefined and restrictive governance mechanisms to Enterprise 2.0 collaboration technology toolsets, compared to traditional information systems. Instead a desired, rather than a set of compulsory underlying rules needs to be defined.
Processes	Business processes consist of a number of sub-tasks and collections of activities, with the objective to be carried out in a consistent and repeatable manner. In relation to Enterprise 2.0 collaboration technology adoption approaches, end-users need to be granted more freedom and training to improve on their existing business processes. The overall climate within the enterprise should be continuous improvement, where an Enterprise 2.0 collaboration technology toolset could play a pivotal role.
Collaboration	Collaboration is the core building block of an Enterprise 2.0 collaboration technology toolset. This implies that enterprises need to be less inclined in locking down end-users to certain elements within the Enterprise 2.0 collaboration technology toolsets, as this could act as a major barrier to enterprise collaboration.
People and culture	In order to realise any benefits from an Enterprise 2.0 collaboration toolset investment, mass-user participation is required. The authors suggest that a voluntary approach be applied, and user participation be rewarded, in order to stimulate a culture of enterprise collaboration.

The research suggests that an Enterprise 2.0 collaboration technology adoption strategy requires a well-defined governance framework, which should be aligned, and be supportive of the enterprise’s underlying business strategy. In addition, a hybrid adoption approach should be followed, incorporating well-defined roles-and-responsibilities.

3.6 Chapter summary

This chapter has presented a systematic overview of the existing literature pertaining to previously studies conducted on adoption maturity models, technology adoption models, as well as adoption strategies and frameworks.

Several technology-adoption models were reviewed and compared, including the ‘Diffusions of Innovations’ theory, Technology Acceptance Model (TAM), and the Value-added Model (VAM).

Although the technology adoption models, as well as several frameworks have been suggested for implementing and adopting Enterprise 2.0 collaboration technology toolsets, the literature presented did not account for the sustainability and motivational elements required in adopting and promoting Enterprise 2.0 collaboration technology toolsets. Furthermore, the existing literature does not address the communication, training and support elements required to assist end-users to transition towards Enterprise 2.0 collaboration technology adoption.

This chapter does, however, highlight, the importance of an adoption strategy, which should incorporate a hybrid-adoption approach containing both top-down, as well as bottom-up elements. Furthermore, the research suggests that a governance framework should incorporate four principles, namely: empowerment, processes, collaboration and people and culture. The chapter also assists in partially answering two of the supporting research questions:

- **What are the critical success factors, for adopting and promoting Enterprise 2.0 collaboration technologies?** The literature suggests that a hybrid adoption approach be followed, having top management drive the Enterprise 2.0 collaboration technology adoption process, however, also providing end-users the necessary autonomy to be creative. Furthermore, define the roles-and-responsibilities up front, as well as underlying ownership of content.
- **What are the generic guiding principles for adopting and promoting Enterprise 2.0 collaboration technologies?** The literature suggests that an Enterprise 2.0 collaboration technology adoption strategy incorporates key principles, such as a purpose, with clear defined objectives, an underlying governance framework, and information architecture framework, describing the content, permissions and relationships, as well as a maintenance and support structure.

Chapter 4 - Research Methodology

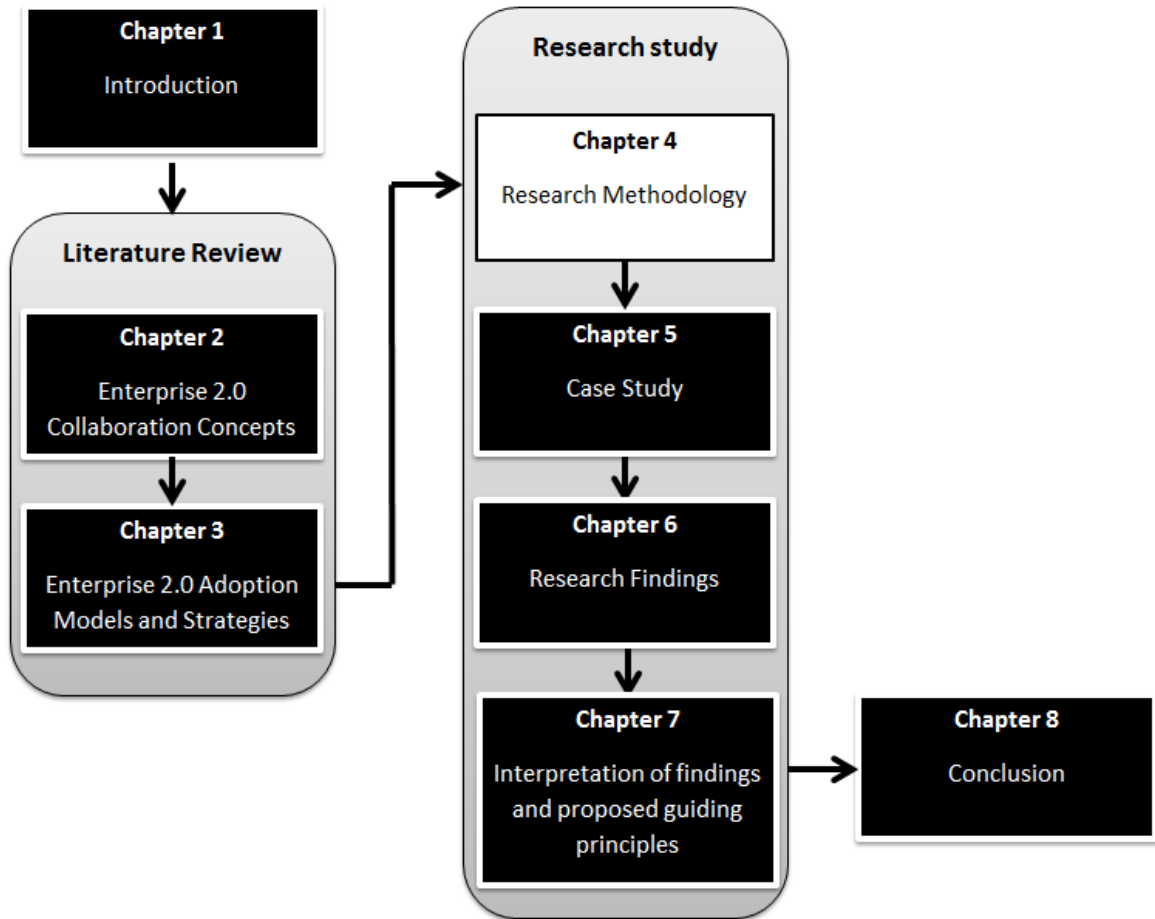


Figure 4.1 - Chapter progression

4.1 Introduction

This chapter presents the research methodology, as well as the reasoning approach employed. The remainder of the chapter discusses the chosen research strategy, the primary and secondary data-collection methods used, the population of interest, as well as the validity and ethical considerations taken into account, which must be adhered to.

The first point of departure in collecting the primary data for a research study is to select an appropriate research methodology. There are two possible alternatives: either a quantitative or qualitative research method.

A quantitative research method enables us to interpret the data collected in the form of numerical data, and then to analyse the data in the form of tables, charts or graphs. It enables the researcher to identify trends or patterns with numerical subsets of data, thereby drawing conclusions, based on the statistics (Oates, 2006:245).

A qualitative research methodology enables the researcher to interpret the data collected in the form of words, images, company documents, interview records, websites and theoretical models, in contrast to the numerical format (Trauth, 2009). Qualitative research data are gathered primarily via case studies, interviews, action research, ethnography and text analysis (Oates, 2006:266).

A qualitative research methodology is ideally suited, when the researcher needs to understand why people behave in a certain way, or how social environments impact on interaction and relationships. These issues are difficult to measure and interpret when using quantitative data (Ghauri and Grønhaug, 2005; Strauss and Corbin, 1990).

A qualitative research approach was, consequently, followed in this study. The primary research objective was to *determine how generic guiding principles could facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment* by identifying and assessing the guiding principles that could assist in implementing behavioural changes in adopting and promoting an Enterprise 2.0 collaboration culture in an enterprise environment. Semi-structured interviews and research administered questionnaires were used as the primary source in the data collection methods.

4.2 Deductive and inductive reasoning:

Closely related to a qualitative or quantitative research methodology, is the concept of induction and deductive research reasoning approaches. According to Ghauri and Grønhaug (2005), through ‘induction’ reasoning, the researcher draws generalisations from the empirical observations. In this form of research, observations lead to findings. The findings are then incorporated into the existing body of knowledge. An ‘induction’ reasoning approach is commonly used with such a qualitative-research methodology.

In the case of a ‘deductive’ reasoning approach, conclusions are made, based on logical reasoning. This implies that the researcher deduces a hypothesis from the existing literature, which can be tested against empirical findings. A ‘deductive’ reasoning approach is commonly used with a quantitative research methodology.

This study has made use of an ‘inductive’ reasoning approach. General conclusions were drawn from the empirical observations. These were based on the primary data-collection methods (semi-structured interviews and questionnaires). The findings were analysed and validated through triangulation with the existing literature, as well as being reviewed by external subject-matter experts.

4.3 Research strategy – a case study

A case study approach was used to gather the data from a large South African ICT enterprise operating within the retail sector based in, Johannesburg. A case study explores the various factors, issues, processes, influences and relationships of a phenomenon; and it then depicts a detailed picture, in order to allow the researcher to explain “How” and “Why” certain outcomes occur in a given situation (Oates, 2006:142).

When selecting a case study research strategy, it is important to collect as much data as possible from multiple sources: by means of interviews, questionnaires, surveys, and observations, as well as secondary-data sources, such as enterprise financial and operational reports (Yin, 2003).

There are three primary forms of case studies (Yin, 2003): exploratory, descriptive and explanatory. The first form, an ‘exploratory’ case study, can assist a researcher to understand the underlying research problem. It is commonly used where there is little research literature available. The second form, a ‘descriptive’ case study, can assist the researcher in gaining a

rich insight into a phenomenon, and to better understand how people perceive what has occurred.

The last form, an ‘explanatory’ case study, can assist a researcher to understand and explain why a specific outcome occurred. This form of case study seeks to identify the various elements that result in a specific outcome, as well as to interlink the findings to the current available literature.

This study made use of an exploratory, as well as a descriptive case study research technique to gather data from a large South African ICT enterprise operating within the retail sector, based in, Johannesburg. The exploratory case study research technique was chosen, as it allowed us to investigate and obtain in depth information on the research topic. Furthermore a descriptive case study research technique was also chosen, as it allowed us to describe the challenges experienced, lessons learned, critical success factors identified, contributing towards the underlying guiding principles.

The objective was to obtain an in-depth understanding of the challenges experienced, as well as the lessons learned, during their Enterprise 2.0 collaboration technology adoption endeavours. A single case study was conducted, due to constraints (such as time, resources and geographical locations). However, the same study could be replicated within other enterprise environments.

4.4 Population of interest

There are very few statistics available on enterprises that have successfully adopted and promoted Enterprise 2.0 collaboration technologies using a selected or combination of web strategies, adoption guidelines and/or adoption models. Enterprise and enterprise end-users were selected based on purposive sampling, rather than on probability sampling.

According to Oates (2006:98), purposive sampling allows the researcher to select an audience, which is most likely to produce valuable data, in order to achieve the research objectives. The selected enterprise has been actively using an Enterprise 2.0 collaboration technology toolset for three years; and has managed to implement an adoption strategy.

Enterprise end-users that formed part of the case study were selected by using purposive sampling. Semi-structured interviews were conducted on three (3) end-users, comprising a business analyst, a technology specialists and a senior executive. Furthermore, administered

questionnaires were completed by five (5) end-users, who actively use their Enterprise 2.0 collaboration technology toolset on a daily basis, performing operational as well as business administrative tasks. Audio recordings were made of all the interviews and questionnaires conducted. The interviews averaged ninety minutes, whereas the questionnaires averaged sixty minutes in duration.

We believe that the selected enterprise has provided valuable insights, into the challenges experienced during the adoption of their selected Enterprise 2.0 collaboration technology approach, as well as having assisted in identifying the underlying critical success factors and guiding principles that contribute to a sustainable Enterprise 2.0 collaboration technology adoption and promotion strategy.

4.5 Case study background

In order to address our primary research objective: *‘To determine how generic guiding principles could facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment’*, an exploratory case study was conducted on an enterprise that had implemented an Enterprise 2.0 collaboration technology toolset, as well as formulated an Enterprise 2.0 collaboration technology adoption and promotion strategy.

The case study presented a unique opportunity to gain access to both primary and secondary sources of data. The chosen case study was based on an internal project referred to as project ‘In Touch’². Project ‘In Touch’ was initiated by the selected enterprise in July 2011, with the primary objective being to enhance communication, collaboration, knowledge and information-sharing, as well as promoting innovation in the enterprise. A more in-depth review of the case study will be discussed in Chapter 5.

4.6 Data-collection methods

The data were collected for this study by using two primary methods, namely:

- **Questionnaires:** Questionnaires consist of a number of predefined questions. The questions are posed to respondents to complete, either on their own; or they are administered by the researcher. The answers provided by the respondents enable the researcher to form generalisations on the viewpoints of the respondent sample (Oates, 2006:219).

² Not the actual project name. An alias was used to protect the enterprise’s identity.

A researcher-administered questionnaire was used to obtain the viewpoints from enterprise end-users who were actively using the Enterprise 2.0 collaboration technology toolset on a daily basis. The enterprise end-users were selected from a variety of enterprise divisions and departments, in order to comprise a representative sample.

- **Semi-structured interviews:** Interviews represent an important source of primary data in relation to case study research (Yin, 2003). Ghauri and Grønhaug (2005) identify three main types of interviews: structured interviews (have a predetermined and standard format), unstructured interviews (have no predetermined structure or flow), and semi-structured interviews (contain elements of both structured and unstructured interviews).

A semi-structured interview process was undertaken, in order to gather the data from key project sponsors, as well as content administrators, in the selected enterprise. The semi-structured interviews were primarily structured around predetermined questions; but they also allowed for additional themes to be discussed.

4.7 The use of primary and secondary data

The primary data were collected, in order to address the underlying research questions and objectives. The secondary data were used to complement the findings of the primary data, as well as to elaborate and define the underlying research problems. The advantage of primary data over secondary data is that primary data is collected to address a particular research problem.

Secondary data, however, can also be very useful in providing historical facts, and for increasing the sampling target audience. In addition, secondary data allow the researcher to better understand and explain the underlying research problem. They can also assist in interpreting and analysing the primary data collected (Ghauri and Grønhaug, 2005).

4.8 Data-analysis technique

A thematic-analysis technique was used to analyse and interpret the primary data collected via semi-structured interviews and the researcher-administered questionnaires. A thematic-analysis allows the researcher to identify important themes that emerge through the primary data collected (Daly, Kellehear and Gliksman, 1997).

Furthermore, a thematic-analysis technique allows the researcher to interpret and analyse the data from a social-science perspective: commonly through observations, interviews and questionnaires (Holstain and Gubrium, 1997). Moreover, the thematic-analysis technique embodies a qualitative research approach.

In this research study, the thematic-analysis technique presented an effective mechanism for identifying the primary themes that emerged through the interviews and questionnaires conducted. In addition, document analysis was employed. Documents can be viewed as an alternative source of data compared to interviews and questionnaires. In case studies, documents can be employed to complement, as well as question, the data obtained via other data-collection methods (Oates, 2006:235).

The case study enterprise made a number of documents available relating to their Enterprise 2.0 collaboration technology adoption project. The documents were employed to both present the enterprise's adoption approach, as well as to substantiate the research findings.

The primary themes are expressed as the underlying guiding principles in adopting and promoting Enterprise 2.0 collaboration technologies in the enterprise environment. The identified guiding principles are presented and discussed in Chapter 7.

4.9 Reliability and validity

Reliability and validity are key concepts associated with the qualitative research approach, and they have a direct impact on the quality of the research outcome (Merriam, 1995). According to Haas (1991), reliability refers to the accuracy of the data; it measures the consistency and repeatability of outcomes. On the other hand, validity represents the accuracy of the measurements of a phenomenon.

According to Burke (1997), a major threat to validity is 'researcher's bias'. This relates to the problem, where researchers find what they *want* to find due to the exploratory nature of qualitative research. Researcher bias results from selective observation and selective recording of the information. Burke (1997) describes five types of validity that should be considered during a qualitative research study:

- **Descriptive validity.** This form of validity relates to the accuracy of reporting. It answers the question: Did the researcher actually report on what was observed? One effective strategy that can be used in descriptive validity is 'investigator

triangulation'. This can be achieved by making use of multiple observers, to avoid the problem of 'researcher bias' when researching a phenomenon.

- **Interpretive validity.** This form of validity relates to the interpretation of the observed study. An effective strategy for interpretive validity is to allow for multiple participant feedback; this allows for cross-checking of the gathered data.
- **Theoretical validity.** This form of validity relates to the cross-checking of information from the available literature (theory). An effective strategy for theoretical validity is theory triangulation; validating the information from multiple sources.
- **Internal validity.** This form of validity relates to the extent to which the researcher draws cause-and-effect relationships, based on the observed data. An effective strategy for internal validity is to make use of data triangulation. This involves using multiple sources of data to conclude cause-and-effect relationships.
- **External validity.** This form of validity relates to the extent to which the researcher draws cause-and-effect relationships, based on other researchers observed data. An effective strategy for external validity is to make use of data triangulation. This involves using multiple sources of people, settings and times to conclude cause-and-effect relationships.

Since validity forms a vital role in any qualitative study, this research study incorporated three validity approaches, including: the theoretical, internal and external approaches. The theoretical and external validity approaches were used to validate the identified guiding principles through a systematic review of the existing literature, as well as reviews and comments obtained from two subject-matter experts representing independent enterprises.

The two independent subject-matter experts were selected on the basis of their experience in implementing, promoting and sustaining end-user adoption of Enterprise 2.0 collaboration technology toolsets, as well as their willingness to participate in the study. The identified guiding principles were emailed to them for reviews; and the associated comments received back are presented in Chapter 7.

Furthermore, internal validity was employed when examining the documentation presented by the enterprise, towards their Enterprise 2.0 collaboration technology-adoption approach employed. In addition, reliability and validity were ensured by incorporating the following principles:

- The semi-structured interviews and questionnaires were clearly formulated to prevent any ambiguous responses.
- Only end-users who actively participate in Enterprise 2.0 collaboration technology adoption and promotion projects were interviewed and questioned.
- The guiding principles identified were validated, and then assessed against the existing literature, as well as being reviewed by two external subject-matter experts.

In addition, multiple data-collection methods were used (questionnaires, as well as semi-structured interviews), which allowed for triangulation. Triangulation enables a researcher to validate the data by using various methods (Saunders, Lewis and Thornhill, 2003)

4.10 Ethical considerations

Ghuri and Grønhaug (2005) define research ethics as moral principles and behaviours that describe acceptable research activities. Guillemín and Gillam (2004:263) identify two dimensions to qualitative research ethics. The first comprises ‘procedural ethics’ (obtaining approval from an ethics committee to undertake a research project); while the second comprises ‘ethics in practice’ (the day-to-day ethical issues and considerations that need to be taken into account when conducting research).

This study conforms to the UNISA research ethics policy (2007). The following ethical considerations were taken into account during the course of this study:

- Each respondent’s identity was protected.
- The case-study enterprise identity was protected.
- Prior to interviewing and administering questionnaires to the respondents, the objectives, risks and nature of the research were fully explained.
- Respondent’s participation was voluntary; and they were not obliged to answer all questions.
- All answered questions were confirmed with each respondent, in order to avoid the ambiguous representation of any collected information.

4.11 Research design – conceptualised

Figure 4.2 illustrates the research design used in this study. The selected research approach consisted of two phases: the first phase involved **identifying** the guiding principles that facilitate Enterprise 2.0 collaboration technology adoption and promotion. The existing literature, as well as the two primary data-collection methods (semi-structured interviews and questionnaires), were used to identify the proposed guiding principles, based on the enterprise case study. In addition, document analysis was employed in order to substantiate the research findings.

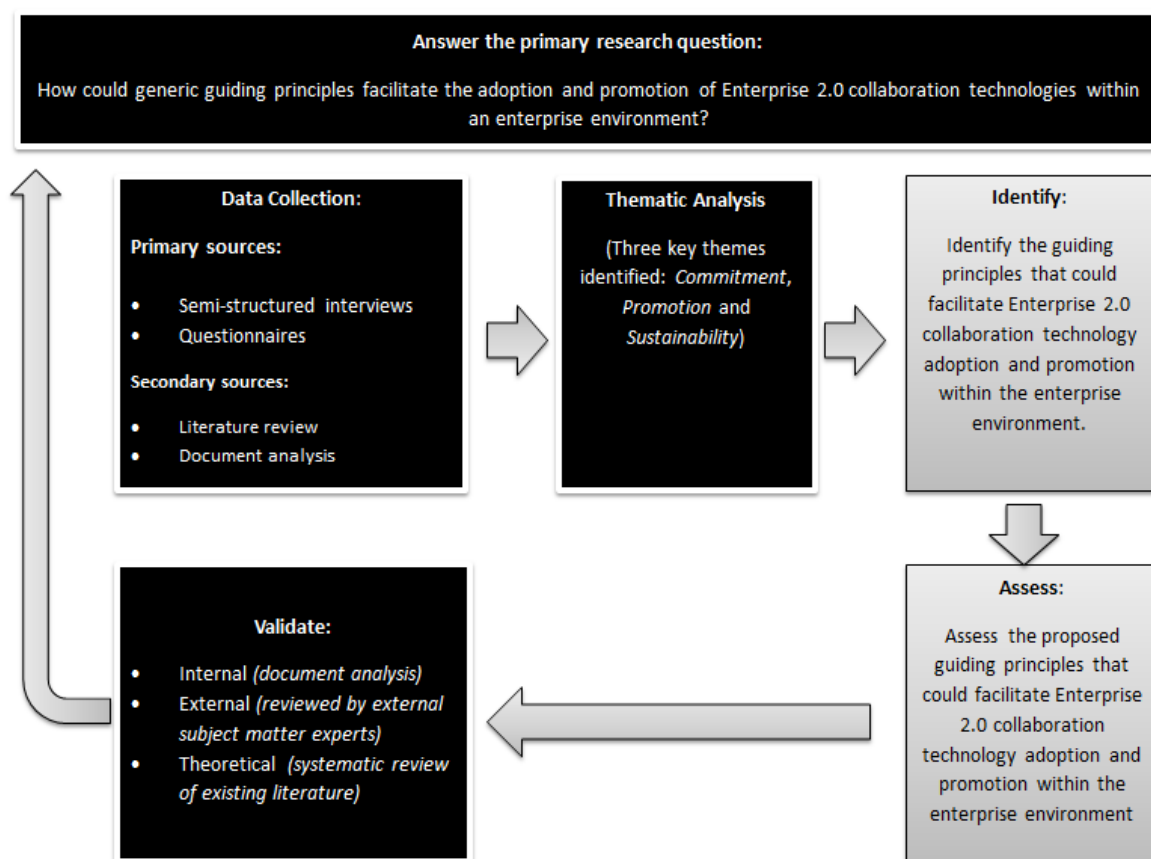


Figure 4.2 - Research design conceptualised

The second phase involved **assessing** the identified guiding principles. The resulting guiding principles were validated by means of a systematic review of the existing literature, via documentary analysis and external expert reviews (Hashim and Jones, 2007; Burke, 1997; Holstein and Gubrium, 1997; Merriam, 1995). In addition to comments obtained from the two independent external subject-matter experts.

4.12 Generalisation of the findings

Generalisation addresses the question: *Can the results of the selected research study be replicated and applied to other cases as well?* Generalisation plays a pivotal role in qualitative research studies, because the studies are not usually designed for systematic generalisation to some wider population of interest. Generalisations in a qualitative research study usually take place in the form of a theory (Maxwell, 1992). Walsham (1995) suggests four main types of generalisations:

- A **concept** is a new idea that is generated from a study.
- A **theory** is a collection of concepts that is generated from a resulting study. The theory might be expressed as a conceptual framework, or depicted via a diagrammatic model.
- **Implications** might arise from a resulting study, as well as mitigating any recommendations that might be suggested.
- **Rich insights** might result from a resulting study, presenting a new understanding of the underlying situation.

The generalisation of this research study resulted in a set of guiding principles, which could assist enterprises in adopting and promoting Enterprise 2.0 collaboration technology toolsets. The guiding principles generated from the underlying case study and validated through triangulation, including theoretical, internal and external validation techniques. The resulting guiding principles could be applied to similar enterprises wishing to formulate an adoption-and-promotion strategy for their selected Enterprise 2.0 collaboration technology toolsets.

4.13 Chapter summary

This chapter has highlighted the chosen research methodology. The chapter has also described the population of interest, the sources of primary and secondary data, the concepts of reliability and validity, as well the possible generalisation of the findings. In addition, this chapter has introduced the selected case study.

As this research study has incorporated a qualitative research approach, reliability and validity were of great importance. The study employs a combination of theoretical, internal and external validating elements, in order to ensure triangulation. The theoretical and external validity approaches were used to validate the identified guiding principles through a

systematic review of the existing literature, as well as reviews and comments obtained from two subject-matter experts representing independent enterprises.

The two independent subject-matter experts were selected on the basis of their experience in implementing, promoting and sustaining end-user adoption of Enterprise 2.0 collaboration technology toolsets, as well as their willingness to participate in the study.

Furthermore, internal validity was employed by examining the documentation presented by the enterprise, towards their Enterprise 2.0 collaboration technology-adoption approach. The identified guiding principles were emailed to them for reviews; and the associated comments received back are presented in Chapter 7.

Chapter 5 - Case study

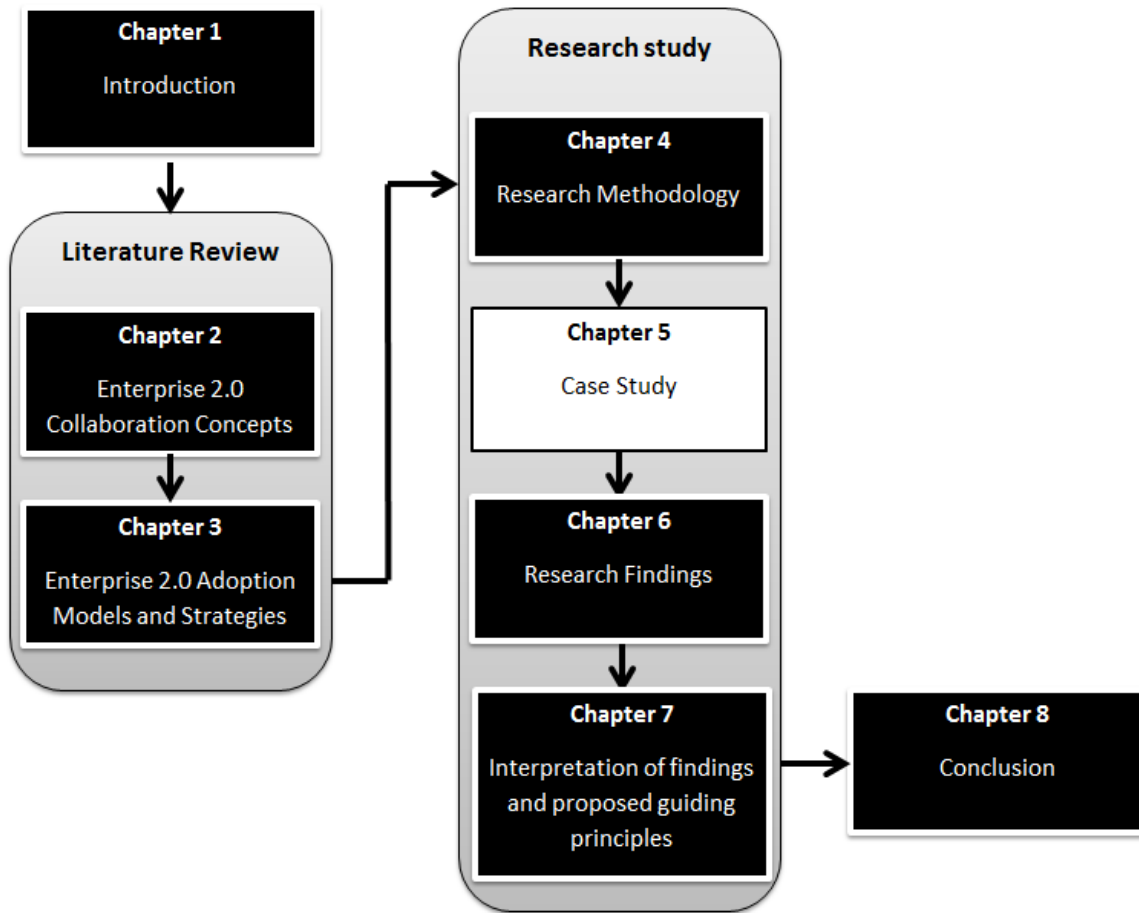


Figure 5.1 - Chapter progression

5.1 Introduction

This chapter presents an overview of the enterprise studied, as well as the criteria used in selecting the chosen enterprise. In addition, the chapter presents the case study description, listing the strategic objectives of the chosen enterprise, as well as the Enterprise 2.0 collaboration technology selection approach taken in identifying the enterprise's underlying information architecture, Enterprise 2.0 collaboration technology toolset, thereby defining the enterprise's site structure, as well as defining the roles and responsibilities of the enterprise's Enterprise 2.0 collaboration technology steering-committee.

Furthermore, the chapter presents the approach taken by the enterprise in implementing, adopting and promoting their chosen Enterprise 2.0 collaboration technology toolset. The information gathered provided valuable insight into the underlying guiding principles.

5.2 Overview of the company

The case study was based on a large South African ICT enterprise operating within the retail sector, based in Johannesburg. In order to preserve the enterprise's identity, the enterprise will be referred to as 'Contoso'. Contoso has been providing Information System (IS) and Information Technology (IT) retail solutions for more than 14 years.

Contoso employs over 400 employees, all of whom contribute various technological and business competencies to the enterprise's underlying services and solutions. Contoso provides a number of ICT services to a large number of retailers operating both locally in South Africa, as well as in a number of other African countries.

5.3 Case study selection criteria

The enterprise was selected based on its willingness to share its Enterprise 2.0 collaboration technology adoption lessons learned. Furthermore, the enterprise had been utilising an Enterprise 2.0 collaboration technology toolset in excess of three years, and has developed a mature adoption framework for promoting and sustaining end-user adoption.

The chosen case study was based on an internal project referred to as project 'In Touch'³. Project 'In Touch' was initiated by the selected enterprise in July 2011, with the primary

³ Not the actual project name. An alias used to protect the enterprise's identity.

objective being to enhance communication, collaboration, innovation, knowledge and information-sharing in the enterprise.

The studied enterprise also made a number of documents available relating to their Enterprise 2.0 collaboration technology adoption project. The documents were employed to both present the enterprise's adoption approach, as well as to substantiate the research findings.

5.4 Case study description

In early 2011, Contoso made a corporate strategic decision to invest in an Enterprise 2.0 collaboration technology toolset, in order to achieve its strategic objectives. The three key strategic objectives at the time included:

1. To consolidate Contoso's position in the market as a leading retailer ICT enterprise.
2. To improve on the delivery of exceptional services, as a trusted retail partner.
3. To establish a knowledge repository to build and sustain Contoso's retail intellectual property both from a technological and business-operation's perspective.

In order to achieve the three key strategic objectives, Contoso's senior executive team appointed a virtual team, consisting of a business analyst, a project manager, a business development executive, an information-technology manager and a technology operational support team. Figure 5.2 depicts the virtual team's objectives identified, and the sequence in which they were identified and assessed.

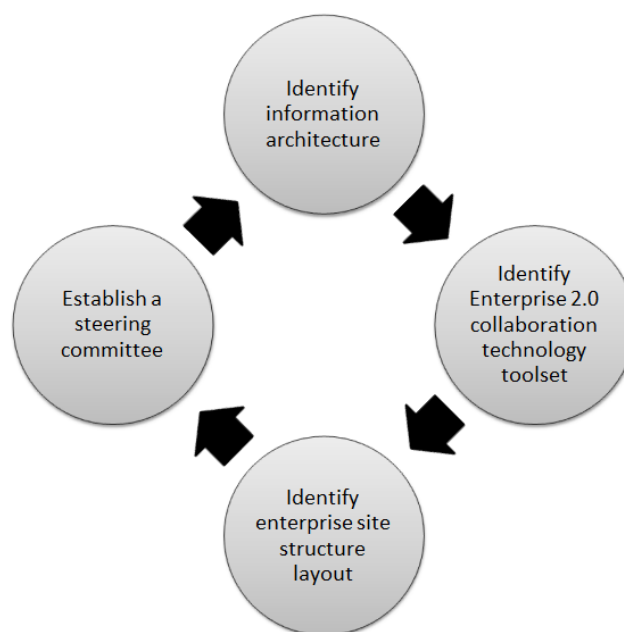


Figure 5.2 - Contoso virtual team objectives

5.5 Information architecture

The Contoso virtual team's first point of departure was to conduct an information-architecture assessment. The information architecture assessment allowed the virtual team to identify the various types of information sources in the enterprise that would need to be addressed by the Enterprise 2.0 collaboration technology toolset.

5.5.1 Information sources

Contoso's virtual team conducted a series of workshops with a number of enterprise-division executives, as well as divisional departments. The output of these workshops translated into an information-requirements matrix, as described in Table 5.1. The information-requirements matrix presented a 'bird-eye' view of the type of information to be represented by an Enterprise 2.0 collaboration technology toolset. In addition, it also represented the requirements that would need to be achieved as phase one of their Enterprise 2.0 collaboration technology adoption project.

Table 5.1 - Contoso information-requirements matrix

Information Type	Requirement highlights
Project archive	Create a consolidated project archive to store all project records as well as deliverables.
Best practices (Retail/ Technology)	Create a consolidated view of all retail technology lessons learned as well as maturity models defined. In addition, a known-error database needs to be derived from this information.
People / resources/ skills	Create a simple view to allow end-users to update their staff profiles, as well as the ability to find resources based on skills and project experience.
Standard Operating Procedures (SOPs)	Create a consolidated view of all business methodologies employed, as well as procedural and policy information.
Client info / interaction	Create a simple, as well as a consolidated view of common client information, incorporating both operational, contractual, escalation and IT landscape technology and business documentation.
Partner info / interaction	Create a simple, as well as a consolidated view of product and service catalogues, pre-sales proposals, case studies and white papers conducted.
Team collaboration	Create an integration platform that allows divisional and departmental teams to collaborate via documents, instant messaging, calendars, as well as the ability to collaborate via standardised meeting-and-team workspace templates.

Following the information requirements matrix, the next step was to identify the enterprise sources of information, including associated enterprise forms, business-process documentation, operating procedures and policies, as well as underlying information systems. This allowed the virtual team to depict the sources of information into a master data matrix as depicted in Figure 5.3.

Project Document Category	Technology Solution	Retail Value Chain	Operational Document Category
Bid	CRM	Strategy	Budget
Billing Schedule	EFT	Plan	Training material
Business Requirement	ERP	Buy	User Signoff
Specification	JDA Enterprise Planning	Move	Invoice Request
Case Study	PCMS Beanstore	Sell	Handover Checklist
Change Control	POS	Service	Incident Report
Data Requirements	SAP ERP	Non-Retail	Call Report
Specification	SAP All-in-One		Monthly Stats Report
Deliverable	SAP BW		Business Requirement
External	SAP CRM		Specification
Issues Log	S1 Postilion		ABAP Quote
Project Charter			Change Request
Project Plan			Functional Specification
Proposal			Configuration
White Paper			Transport
			Business Process and Procedure
			Unit Test Pack
			Proposals
			Contracts

Figure 5.3 - Contoso information master-data sources

Once the sources of the master data had been identified, a second iteration was performed, to identify the relationship between the sources of information. The objective was to identify the relationship between people, projects, clients and corporate documents. Figure 5.4 depicts the master-data source-relationship diagram, as derived by the virtual team. It illustrates the thought process applied, in identifying the information sources, information relationships, and type of categorisation that would be required by an Enterprise 2.0 collaboration technology toolset.

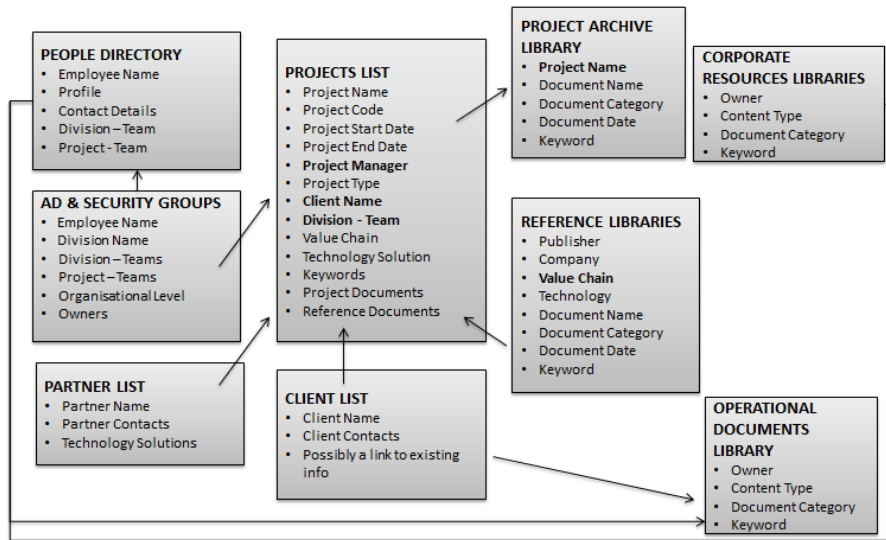


Figure 5.4 - Contoso master data-source relationships

5.5.2 Information-community assessment

Once all the information sources and relationships had been identified, a priority-ranking system was employed, to rank each information type, representing either a “must have”, a “prefer to have”, a “nice to have” or a “not required” priority. The output of this assessment concluded an information channel and information-type matrix, which was presented to the Contoso’s senior executive team for their approval. Figure 5.5 depicts the information channel and the information-type matrix, as derived by the virtual team in 2011.

Primary channel	Information type	Apps Services	Infra-structure	Comm Mgmt	Business Solutions	Integ Services Mgmt	Customer & Business Dev	Business support: Finance, HR	Exco
Docu-ment repository	Project archive	M	M	M ★	M ★	M	M	-	-
	Best practices (Retail/ Tech)	M ★	M ★	-	M	-	N	-	-
	SOPs	M ★	M	M ★	-	M	-	M ★	-
	Client info / interaction	M ★	P	P ★	M	M	M	-	-
	Partner info / interaction	P	P ★	-	P	M	P	M	-
People directory	People / resources / skills	M	M	P ★	P	M	M	M	M
Ad hoc feeds	Ad-hoc FYI	N	P	-	N	N	P	M	M
Collab-oration	Collaboration on live projects	M ★	P	-	N ★	M	M	M	N
	Team collaboration	M	P	-	N ★	M	-	-	-
	Organic Communities	N	N	-	N	N	N	N	-

M = Must have. P = Prefer to have. N = Nice to have. - = Not usually required.
 ★ = work is being done by this team in this area

Figure 5.5 - Contoso information channels and type matrix

5.6 Enterprise 2.0 collaboration technology selection process

With a clear understanding of the information sources and information requirements, the next objective of the virtual team was to identify an appropriate Enterprise 2.0 collaboration technology toolset. The virtual team identified six core functional areas that would need to be assessed. Figure 5.6 represents the six core functional areas identified; they include, a document-management repository, a static-web content, a people’s directory, Web 2.0, collaboration tools, and electronic-learning.

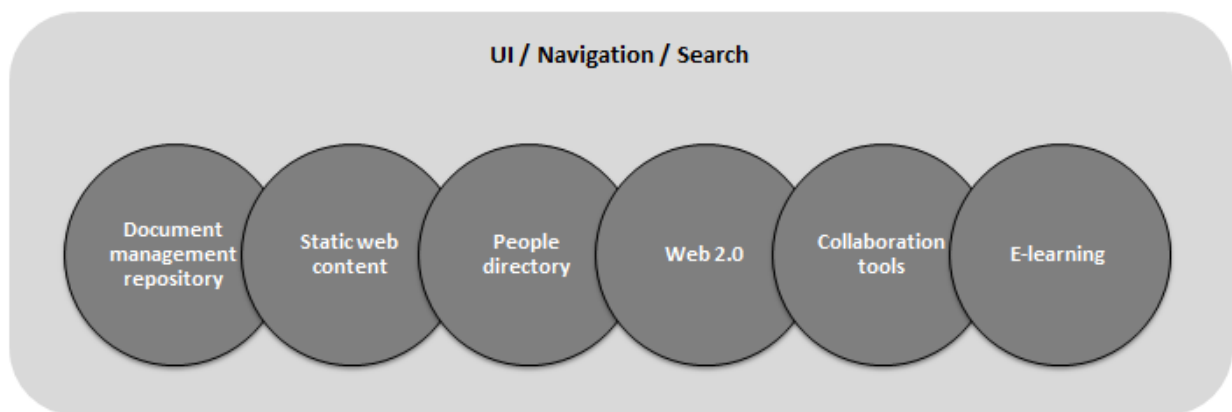


Figure 5.6 - Contoso Enterprise 2.0 collaboration technology functional areas

Table 5.2 represents the functional requirements identified by the virtual team, as well as the identification of existing systems in the enterprise that have provided either similar, or portions of the required functionality.

Table 5.2 - Contoso Enterprise 2.0 collaboration technology functionality requirements

Information channel	Functionality required	Existing enterprise systems
Document management repository	Search ability/ indexing/ tagging Document check in / out Version management Security Bulk upload Joint editing	<ul style="list-style-type: none"> • Microsoft SharePoint • File Server
Static-web content publishing	Content editing and publishing for and/or by the community (includes wiki pages)	<ul style="list-style-type: none"> • Microsoft SharePoint
People’s Directory	Contact details Reporting structure Static information Skills and experience profile	<ul style="list-style-type: none"> • Microsoft SharePoint • Active Directory • SCubed

Information channel	Functionality required	Existing enterprise systems
Web 2.0	My Sites Blogs Feed-based tools, e.g. RSS, Twitter Pushing content	<ul style="list-style-type: none"> • Microsoft SharePoint
Collaboration tools	Task management Chats, Q&A, Instant Messaging Team/ meeting workspaces	<ul style="list-style-type: none"> • Microsoft SharePoint
E-learning	Course management Guided course delivery (OTB and presentation) Assessment Training program management	<ul style="list-style-type: none"> • Moodle
UI / navigation / search	Simple elegant entry point is essential. Intuitive design/ architecture.	

Following the identification of the functional requirements, a more granular functional requirements gap analysis was conducted on the existing Enterprise 2.0 collaboration technology toolset, Microsoft SharePoint 2010.

The above Enterprise 2.0 Collaboration technology GAP analysis summary was presented to Contoso's senior executive team, and an enterprise decision was made to continue using Microsoft SharePoint as the enterprise's preferred Enterprise 2.0 collaboration technology toolset.

5.7 Contoso - Enterprise 2.0 collaboration technology site structure

Following a clear understanding of the information-architecture and a selected Enterprise 2.0 collaboration technology toolset, the next step was to define an Enterprise 2.0 collaboration technology site structure. Contoso opted to apply a site structure that was representative of its enterprise's organisational structure.

Figure 5.7 depicts the site structure adopted by Contoso. Each Contoso division would have a site collection allocated to them. Within each divisional site collection, a division document library location, as well as divisional workspaces and team sites would be presented. The same structure was replicated across all divisions, thereby allowing for consistency and predictability across the enterprise.

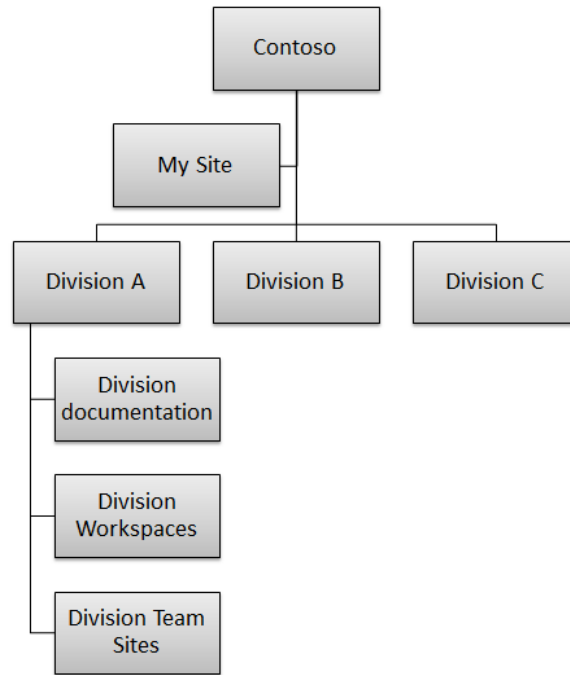


Figure 5.7 - Contoso Enterprise 2.0 collaboration technology site structure

The site structure was derived from six site-structural principles identified by the Contoso virtual team, including:

1. A standardised and consistent site layout structure was required to be presented to the end-users.
2. The corporate landing page had to incorporate a people-and-document searching capability.
3. End-users should be able to search for content both from the corporate landing page, as well as from within each divisional sub-site.
4. Each divisional site had to incorporate a divisional document repository, consisting of corporate resources, project deliverables, operational documents, and reference material.
5. Each divisional team workspace had to incorporate a standardised look-and-feel, including the following Web 2.0 elements: a team calendar, a discussion forum, document library, and a task list.
6. The 'My Site' functionality had to be accessible from any location within the site structure.

Figure 5.8 depicts a site layout diagram that was conceptualised during their site structure design process.

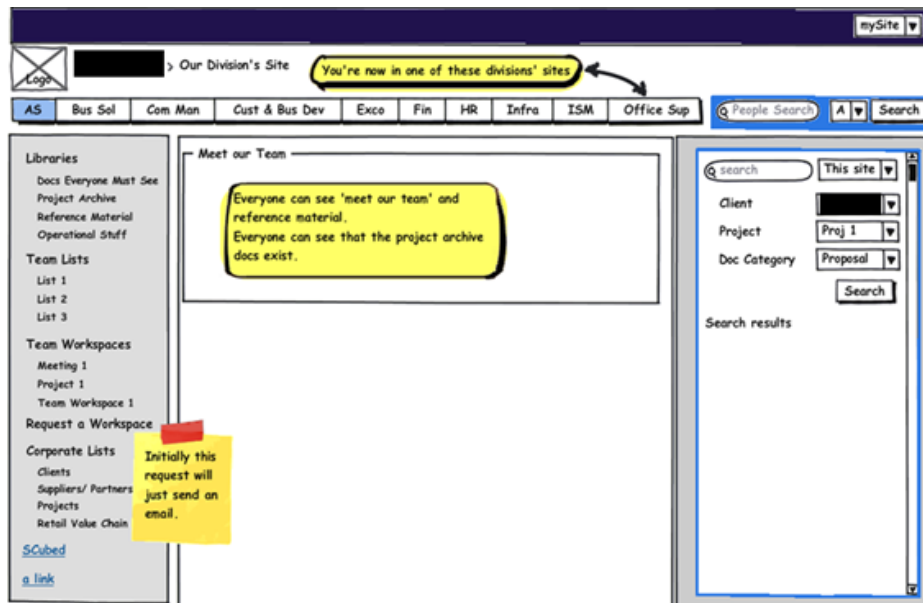


Figure 5.8 - Contoso conceptual site layout diagram

5.8 Contoso – Enterprise 2.0 collaboration technology steering committee

Once the underlying information architecture, as well as the associated enterprise-site structure was defined in the supporting Enterprise 2.0 collaboration technology toolset, the next step was to establish a steering-committee to bring about change. The role of the steering-committee in relation to Contoso can be broadly grouped into three main categories, as depicted in Figure 5.9.

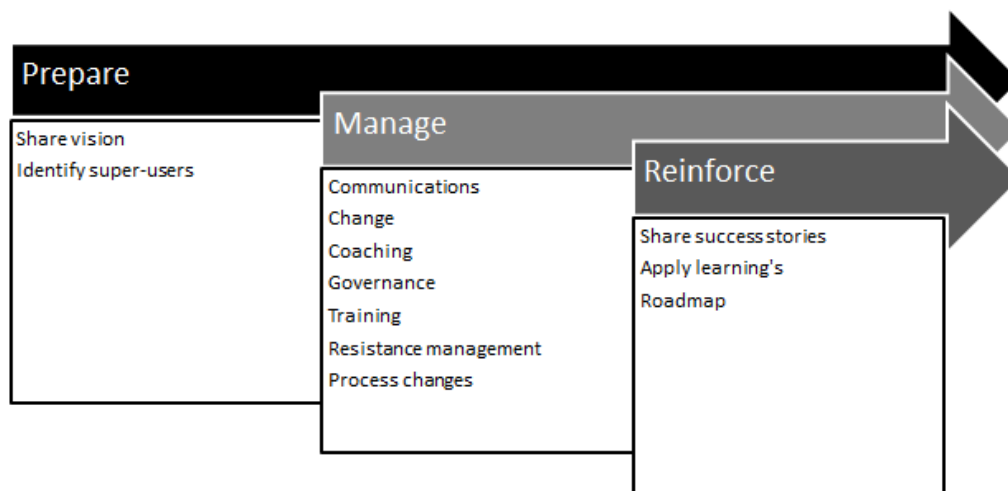


Figure 5.9 - Contoso steering-committee roles

Prepare. The steering-committee was, and still is, responsible for distributing the enterprise’s collaboration and knowledge management vision to the enterprise. They are also responsible for identifying super-users, who include representatives from each division and divisional departments.

Manage. The steering committee was, and is, responsible for managing changes in relation to the Enterprise 2.0 collaboration technology toolset. Furthermore, they are also responsible for creating awareness through enterprise communications, defining and managing an underlying Enterprise 2.0 collaboration-governance framework, establishing and managing a training and support structure, as well as managing resistance to change, and the underlying process-changes required.

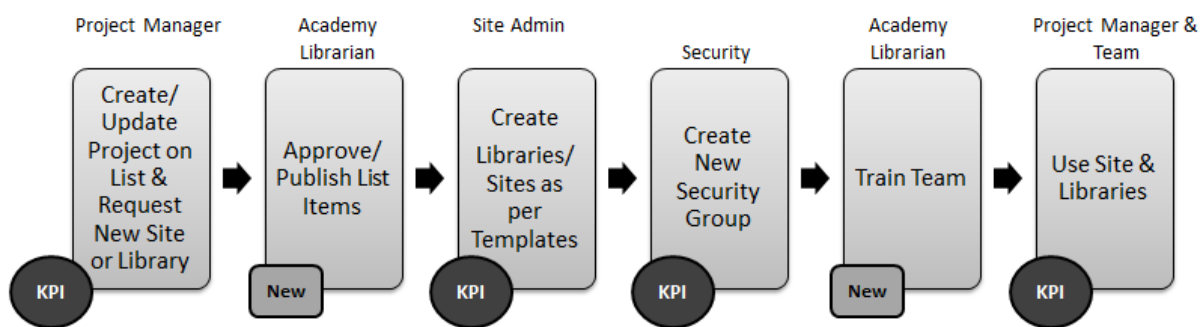


Figure 5.10 - Contoso project list-creation process flow

Figure 5.10 represents a Contoso-process example, whereby a new or an updated request is submitted for a team or meeting workspace site, project list or document library. A very important element of this process is the approval and training cycle followed.

Reinforce. Lastly, the steering committee was, and is still responsible for promoting the Enterprise 2.0 collaboration technology toolset, by creating awareness through success stories and lessons learned by adopting the selected Enterprise 2.0 collaboration toolset. In addition, they are also responsible for formulating and creating awareness of the future Enterprise 2.0 collaboration technology roadmap.

5.9 Contoso - Enterprise 2.0 collaboration technology roadmap

Contoso realised early that an Enterprise 2.0 collaboration technology adoption strategy would be an on-going process, which requires a well-defined technology adoption-roadmap. Figure 5.11 depicts Contoso’s roadmap, as at July 2011.

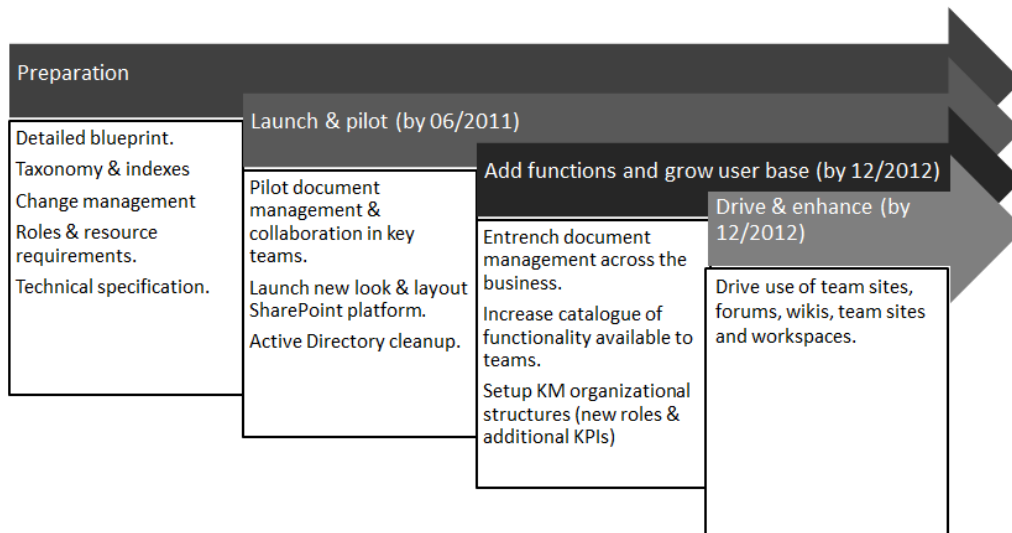


Figure 5.11 - Contoso Enterprise 2.0 collaboration technology adoption roadmap

The first milestone was to prepare the enterprise, by defining an operational-support team structure, establishing site taxonomy with associated indexes to categorise content, establishing a migration process, establishing a change management capability, and defining the various roles and responsibilities.

The second milestone was to pilot the Enterprise 2.0 collaboration toolset with the enterprise. This entailed identifying a pilot end-user community, cleaning up their Active Directory end-user base, in order to provide accurate staff information for their searching capability, as well as establishing an enterprise identify ‘look-and-feel’ landing page, and underlying divisional sites.

The third milestone was to entrench a new document management process across the enterprise, as well as to involve end-user usage into the enterprise’s performance-management process by establishing Enterprise 2.0 collaboration technology Key Performance Indicators (KPIs) for the end-users. Lastly, the fourth milestone was to drive end-user adoption, through contributions to content, wikis and discussion forums.

5.10 Chapter summary

This chapter presented the research case study, as well as the criteria used in selecting the chosen enterprise. Moreover, the enterprise's, chosen Enterprise 2.0 collaboration technology strategic objectives were revealed, the information-architectural approach used, as well as the Enterprise 2.0 collaboration technology toolset selection process, and the site-design principles incorporated.

Lastly, the selected enterprise roadmap was presented, and the various milestone elements described. With the case study and the chosen adoption approach defined, the next chapter presents the research findings.

Chapter 6 – Research Findings

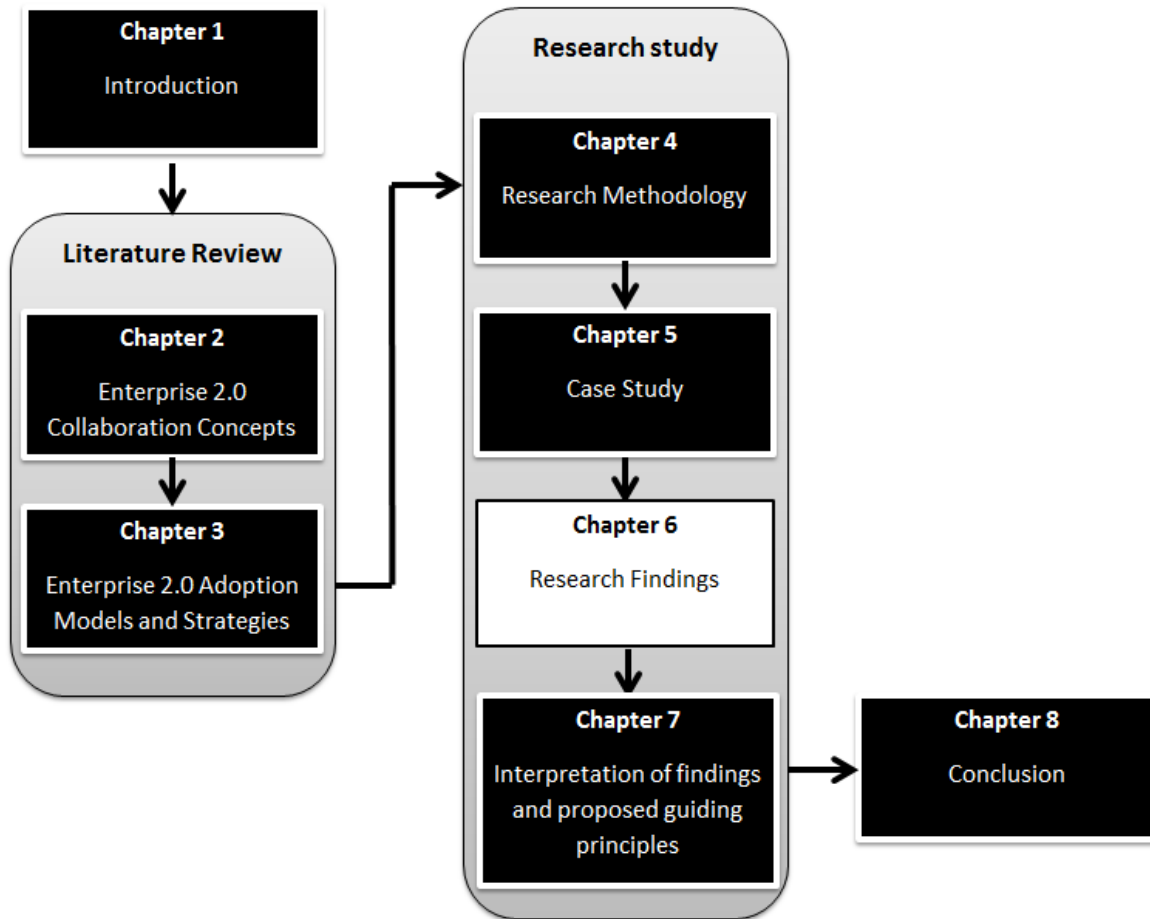


Figure 6.1 - Chapter progression

6.1 Introduction

This chapter presents the research findings obtained from the semi-structured interviews (see Appendix F) and the researcher-administered questionnaires (see Appendix E) conducted on the selected enterprise. The findings are presented in relation to the adoption approach chosen by the case study enterprise.

The findings present valuable insights into the challenges experienced, as well as the lessons learned during the enterprise's Enterprise 2.0 collaboration technology adoption endeavours. In conclusion, the chapter summarises the research findings in relation to four of the five supporting research questions.

6.2 Interview and questionnaire description

The semi-structured interviews and the administered questionnaires were conducted on individuals who participated in the 'In Touch'⁴ Enterprise 2.0 collaboration technology adoption project at Contoso⁵. The semi-structured interviews and questionnaires were structured to address the following four research study questions:

1. What challenges do enterprises currently face when adopting Enterprise 2.0 collaboration technologies?
2. What are the challenges to using Enterprise 2.0 collaboration technologies in an enterprise environment?
3. What are the critical success factors, for adopting and promoting Enterprise 2.0 collaboration technologies?
4. Which of the various Enterprise 2.0 collaboration technology tools have the potential to encourage collaboration in an enterprise?

The remaining sections will highlight Contoso's approach in selecting an appropriate Enterprise 2.0 collaboration technology toolset, as well as the challenges and benefits experienced through their selected approach. The interview respondents' identities have been replaced by aliases, in order to preserve both the case study enterprise, as well as the respondent's identities from becoming known.

⁴ Not the actual project name. Alias used to protect the enterprise's identity.

⁵ Not the actual enterprise name. Alias used to protect the enterprise's identity.

The case study enterprise has made a number of documents available relating to their Enterprise 2.0 collaboration technology adoption project. The documents were employed throughout the research findings presented in this chapter, in order to both present the enterprises adoption approach as well as to substantiate the research findings.

6.3 Strategic direction and technology selection

In early 2011, Contoso made a corporate strategic decision to invest in an Enterprise 2.0 collaboration technology toolset. The three key strategic objectives, as highlighted in Section 5.4 were:

1. To consolidate Contoso's position within the market as a leading retailer ICT enterprise.
2. To improve on the delivery of exceptional services, as a trusted retail partner.
3. To establish a knowledge repository to build and sustain Contoso's retail intellectual property both from a technological and business operational perspective.

6.3.1 Strategic decision and objectives

According to Mr John Botes, Contoso's executive of strategic relations, the three key strategic objectives were formulated based on the decision:

"... to create a centralised location to store and retrieve knowledge and intellectual property (IP), as well as to fast track the distribution and information of retail knowledge within the enterprise. In addition to this, we also needed a fast and easy way to both share and contribute towards retail information." (Interview_Q3)

Furthermore, Mrs Mary Watson, Contoso's business analyst and principal knowledge-management consultant added that:

"Prior to investing in SharePoint, Contoso had a number of information system repositories with a large number of duplicate data sets. A centralised document repository was required, to allow us to standardise our information architecture as well as to provide an easy searchable way of retrieving information." (Interview_Q3)

In addition, the questionnaire results substantiate the interview statements, suggesting that the enterprise-strategic objectives have been clearly communicated to enterprise end-users.

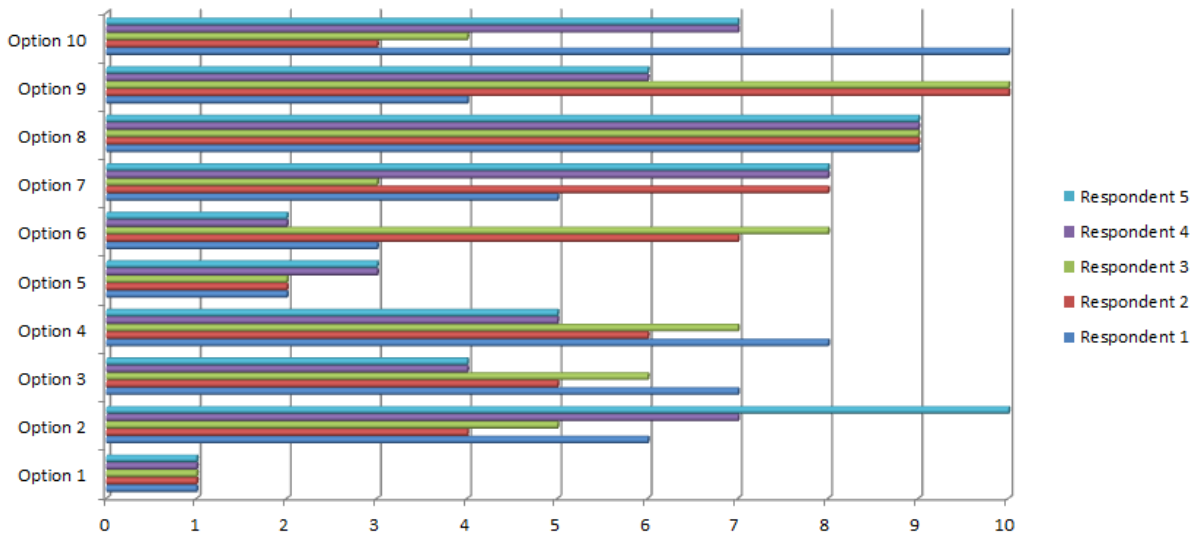


Figure 6.2 - Users perception towards the enterprises strategic objectives

Figure 6.2 presents a graphical view of the respondents' answers received to questionnaire question 2.4: "Which of the following criteria best describes your enterprise's decision in investing in the selected collaboration technology toolset?"

A lower rating indicates a higher priority in the associated objective. All five respondents who completed the questionnaire, perceived: "To achieve our strategic objectives" as being the issue with the highest priority. The second-highest priority chosen was: "To facilitate decision making and solving problems". Table 6.1 presents the relationship between each option and associated question posed.

Table 6.1 - Option relation to strategic objective questions posed

Option	Question
Option 1	To achieve our strategic objectives.
Option 2	To control costs.
Option 3	To developing new products and/or services.
Option 4	To encourage idea generation.
Option 5	To facilitate decision making and solving problems.
Option 6	To improve our product and/or service orientation.
Option 7	To increase capacity.
Option 8	To increase profitability.
Option 9	To increase market leadership.
Option 10	To reduce travelling expenses.

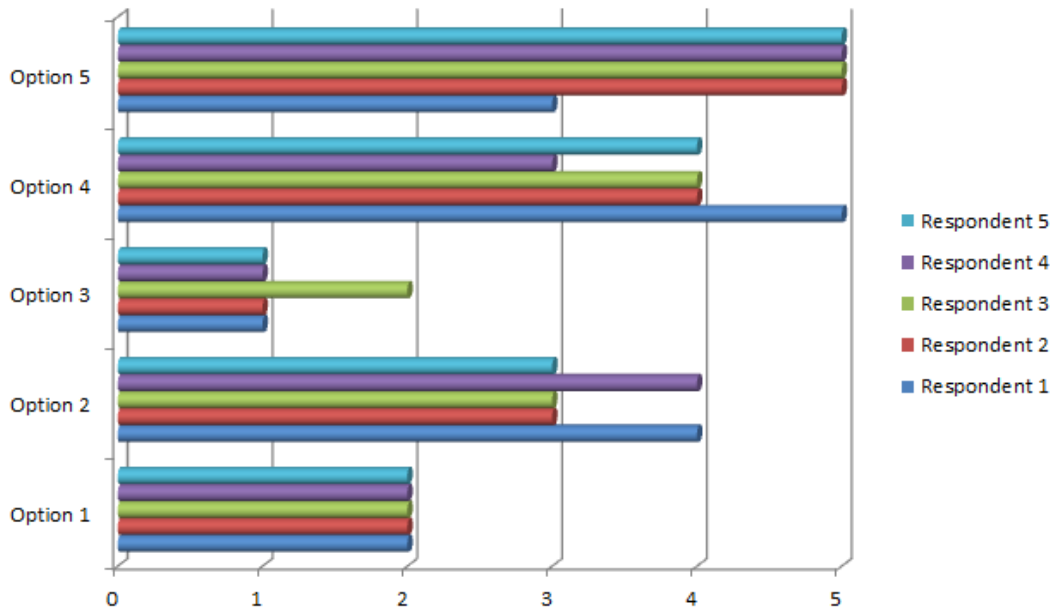


Figure 6.3 - Users perceptions towards the enterprises critical success factors

Furthermore, Figure 6.3 presents a graphical view of respondents' answers received to questionnaire question 6.11: "What are the core critical success factors for your enterprise towards enterprise collaboration?" A lower rating indicates a higher priority in the associated objective. The five respondents perceived that: "To stimulate a culture of enterprise collaboration" and "Improving business communication both internally and externally" as being the objectives with the greatest priority rating. Table 6.2 presents the relationship between each option and associated question posed.

Table 6.2 - Option relation to critical success factor questions posed

Option	Question
Option 1	Improving business communication both internally and externally.
Option 2	Improve cooperation between enterprise users and external parties.
Option 3	To stimulate a culture of enterprise collaboration.
Option 4	To establish connections and community networks between enterprise users and external parties.
Option 5	Other. Respondents mentioned governance, ISO 20000 compliance and change control management.

6.3.2 Information architecture

In order to achieve the three key strategic objectives, Contoso's senior executive team appointed a virtual team, consisting of a business analyst, a project manager, a business development executive, Contoso's internal information-technology manager and a technology-operational support team.

The virtual team's first step was to identify the underlying information-architecture that would be presented by the Enterprise 2.0 collaboration technology toolset. In order to gather the information architectural requirements, Mrs Watson explained that:

“A series of workshops were conducted with a number of divisional departments; the workshops allowed us to identify the type of information that would need to be captured in order to be presented by the underlying Enterprise 2.0 collaboration technology toolset. Examples included, project-related information, pertaining to customers and various technologies, information pertaining to our employees, listing their skillsets, type of projects previously and currently worked on, information pertaining to our client base, as well as standard operating procedures, policies, system diagrams, and very importantly, a known-error database.

Once we understood the type of information that would need to be presented, the next step was to review our existing information sources, technology solutions and corporate documentation that existed within the business as potential sources of input. Following that assessment, we were able to identify the metadata that would be required to categorise content within our SharePoint system.” (Interview_Q28)

6.3.3 Enterprise 2.0 technology-selection criteria

Prior to investing in an Enterprise 2.0 collaboration technology toolset, Contoso's management team felt it necessary to first understand their underlying strategic objectives, as well as the information-architecture that would need to be presented by the Enterprise 2.0 collaboration technology toolset.

With the information-architecture defined, the second step for the virtual team was to conduct a gap analysis, as well as a requirements analysis in order to identify a suitable Enterprise 2.0 collaboration technology toolset. In relation to this exercise, Mr Botes stated that:

“We conducted a blue print exercise to assist us in selecting an appropriate technology toolset; the blue print was also used, to identify divisions and key stakeholders that would need to form part of this project.” (Interview_Q13)

In addition to the gap analysis conducted, a requirements assessment was also performed. Mr Nitesh Khoosal, Contoso's information technology manager explained that:

“A requirements assessment was performed to identify the area’s most likely to bring about quick wins; we ran workshops with the different divisions to establish a ‘heat map’ distinguishing between the ‘must haves’, ‘prefer to have’, ‘nice to have’, and ‘not usually required’ features. We then made use of a gap analysis to determine whether our existing SharePoint platform could address these requirements.” (Interview_Q13)

Moreover, Mr Botes states that the following business drivers were also taken into account in Contoso’s selection process of an appropriate Enterprise 2.0 collaboration technology toolset:

“We evaluated SAP, IBM WebSphere, as well as our existing Microsoft SharePoint platform. We already knew that our Microsoft SharePoint platform was being used by one of our divisions; and we already had the required support skills in house. We evaluated our identified business requirements against the toolsets mentioned, and found that Microsoft SharePoint could meet a large number of our requirements through ‘out-of-the-box’ features.” (Interview_Q2)

Mrs Watson supported this statement, explaining that:

“Although we evaluated a number of competitive Enterprise 2.0 collaboration technology toolsets, we are a Microsoft support-oriented business. We have a large resource pool of Microsoft skillsets within the business, making Microsoft SharePoint the natural choice from a technology perspective.” (Interview_Q2)

6.4 Adoption approach

Contoso’s virtual team regarded a hybrid approach as the best path to Enterprise 2.0 collaboration technology adoption. The top-down element, provides guidance, support and adherence for attaining the strategic objective; while the bottom-up element allows for the necessary autonomy to explore and create content, thus improving participation. In relation to this statement, Mr Botes stated that:

“We predominantly make use of a hybrid approach. We tried to address the bottom-up approach through user-training, communication and incentives; however, our selected approach is heavily weighted towards top-down, simply due to the inertia towards Enterprise 2.0 collaboration. I think that with time, it will become predominantly a bottom-up approach. I feel we would have achieved success if top-management no longer needs to push adoption down towards the end-users.” (Interview_Q12)

Furthermore, Contoso's top management team plays an active role in Enterprise 2.0 collaboration technology adoption. Mrs Watson explained that:

"Having our CEO as our project sponsor has been critical towards our success. He drives the objectives through his senior management team. We also drive usage from the bottom-up by working with individual end-users and team leaders. The ideal therefore seems to be to target adoption from all levels within the business." (Interview_Q12)

6.4.1 Adoption-approach successes and short comings

With an understanding of the adoption approach selected at Contoso, we asked Mr Botes what his thoughts were on the successes, as well as the shortcomings of their selected approach. Mr Botes responded by stating that:

"In relation to the short comings with the selected approach, I can't think of anything specifically. Our communication strategy allowed us to achieve an 80/20 success rate. We were very practical; we had a business case type approach." (Interview_Q15)

Mrs Watson and Mr Khoosal expressed a different opinion on the shortcomings of the selected approach. According to Mrs Watson:

"We underestimated the time it takes to bring about change in the business. We found our end-users to be very set in their existing ways of doing things, and converting them to a new way of thinking presented a daunting task." (Interview_Q15)

Mr Khoosal added to this, stating that:

"At the beginning, we were not sure what the outcome would be. We found that there was initially a negative attitude towards Microsoft SharePoint. Changing people's perceptions on conducting business in a different way, especially around enterprise collaboration, would require a more disciplined approach, especially with top-management buy-in." (Interview_Q15)

With the Enterprise 2.0 collaboration technology adoption approach defined, we asked Mr Botes if the Enterprise-collaboration toolset was adopted throughout the enterprise, three years after project 'In Touch' was initiated. Mr Botes responded by stating:

"Certainly the SharePoint collaboration tools are being used enterprise-wide. We can prove this in two ways: via our My Site profile contributions as well as the number of users per

division contributing to content on a daily basis. It has become a main-stream business function. Everything in our business relates back to Microsoft SharePoint.” (Interview_Q11)

Figure 6.4, presents an overview of Contoso’s employee My Site updates per division, as well as any outstanding employee updates required. Contoso’s steering committee reviews these statistics on a monthly basis, in order to identify divisions, as well as departments that are falling behind. Any division or department trailing in their My Site contributions are addressed by Contoso’s senior management team.

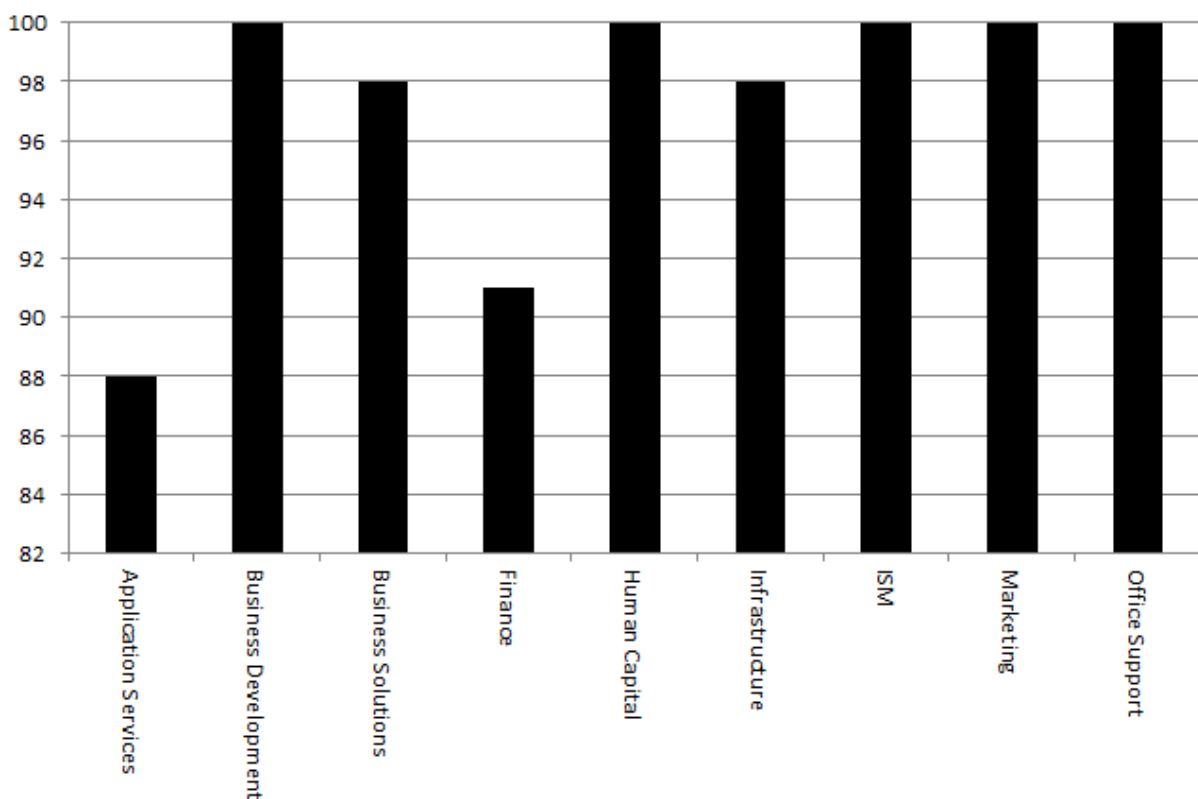


Figure 6.4 - Contoso My Site staff profile updates per division example

As at May 2013, 88% of Contoso’s end-users had up-to-date My Site profiles. The remaining 12% are attended to through line-manager escalations, driven top-down from senior management.

6.4.2 End-user adoption challenges

Contoso also experienced their fair share of end-user adoption challenges. The Enterprise 2.0 collaboration technology adoption challenges experienced by Contoso’s end-users can be grouped into three main categories; firstly due to technical and performance issues associated

with the underlying Enterprise 2.0 collaboration technology toolset implementation and architecture; secondly, the factor of time; end-users expressed concerns that their associated operation responsibilities did not allow sufficient time to explore and make use of the Enterprise 2.0 collaboration technology toolsets. Lastly, end-users have formed repetitive routines with the existing technology toolsets in the enterprise.

According to Mr Botes, the biggest challenge experienced in end-user adoption and participation, was the lack of end-user engagement:

“There is a historical inertia towards Microsoft SharePoint. Users argue that they work remotely, and due to technical issues, are not able to use the system. Another complaint received was that users were too busy, and did not have time to contribute. Our users still don’t seem to see the big picture”. (Interview_Q8)

Mrs Watson shared the same opinion, stating that:

“Our users still do not see an immediate benefit in changing their behaviour towards enterprise collaboration; implementing a new way of doing things is nearly impossible. Until we reach a critical mass of useful content within SharePoint, our users will continue to turn to other information sources.” (Interview_Q8)

According to Mr Khoosal, end-users require time to make the transition to Enterprise 2.0 collaboration technology adoption. Furthermore, end-user awareness forms a vital component in the adoption process. Mr Khoosal explains that:

“User adoption does not occur overnight. Time is required to allow users to make the transition. It is important to get users involved from the beginning, especially during the planning stage. Also very importantly, make sure there are adequate communication and training sessions. User awareness is vital for success.” (Interview_Q36)

“Capacity constraints, technical issues, a lack of exposure to all the available functionality can be regarded as the biggest constraints to SharePoint usage. However, our biggest challenge relates to a lack of user engagement.” (Interview_Q7)

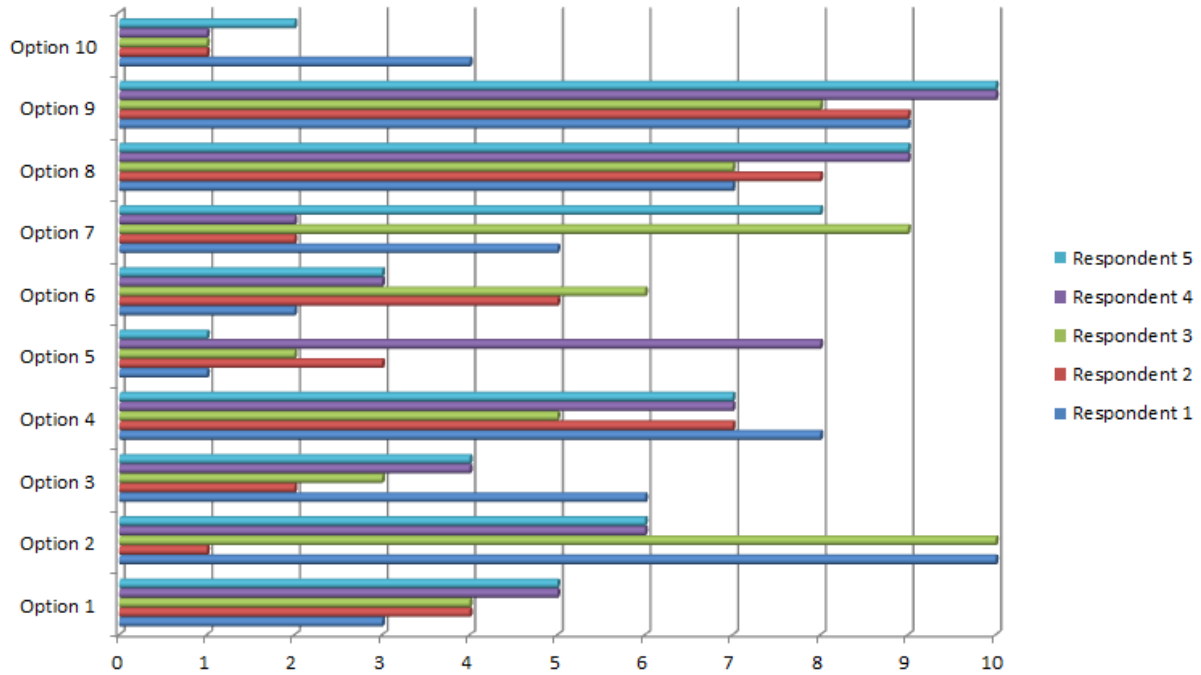


Figure 6.5 - Users perceptions towards Enterprise 2.0 adoption challenges

In addition, the questionnaires results substantiate the interview statements, suggesting that time constrains, as well as resistance to change, are viewed as key challenges. Figure 6.5 presents a graphical view of the respondents' answers received towards questionnaire question 6.2: "What are your greatest challenges towards enterprise user participation?"

A lower rating indicates a higher priority in the associated objective. Two of the respondents rated "Time Constraint" as their greatest challenge towards end-user adoption, and the remaining three selected "Our enterprise end-users are resistant to change". Table 6.3 presents the relationship between each option and associated question posed.

Table 6.3 - Option relation to Enterprise 2.0 adoption challenge questions posed

Option	Question
Option 1	Lack of middle management support.
Option 2	Lack of top management support.
Option 3	Lack of enterprise end-user training and general education of the collaboration toolset functionality.
Option 4	Stringent governance framework.
Option 5	Time constraints.
Option 6	Enterprise end-user behaviour challenges.
Option 7	Culture challenges.
Option 8	Our enterprise is silo oriented, making collaboration initiatives difficult.
Option 9	Security concerns and intellectual capacity protection.
Option 10	Our enterprise end-users are resistant to change.

In relation to these underlying challenges mentioned, we asked if Contoso incentivised end-user participation. Mrs Watson responded to this question, by stating that:

“We used to incentivise end-user participation, by rewarding users with contribution prizes. At one stage we had a competition, where the user who contributed the most to migrating their documents from our file server onto to the SharePoint platform, won an overseas conference trip to Spain. However, we found that incentivising end-users was not sustainable. As we matured over the years in terms of enterprise collaboration, we moved towards a KPI driven approach, where contribution is linked to individual performance. We have subsequently improved on user-participation, and managed to overcome a number of the challenges mentioned.” (Interview_Q23)

Figure 6.6 depicts the number of unique daily end-users making use of the Contoso Enterprise 2.0 collaboration technology toolset. There has been a steady increase within each division over the last few months, indicating a positive trend towards end-user adoption.

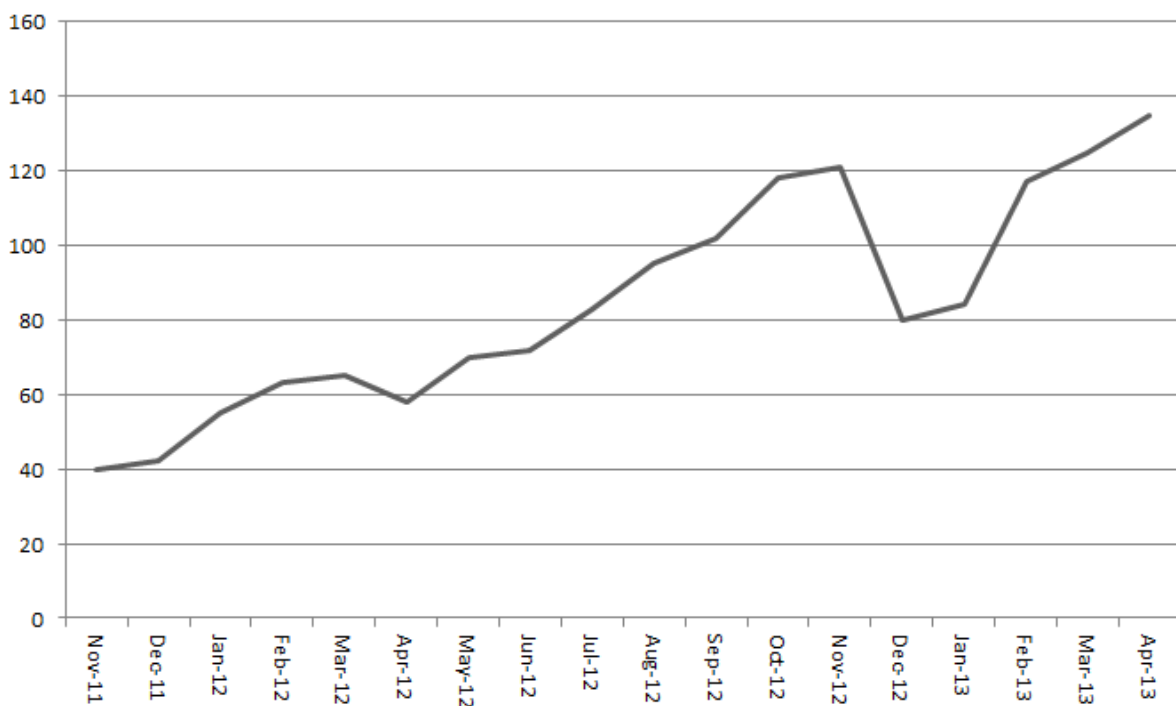


Figure 6.6 - Contoso Enterprise 2.0 collaboration technology toolset unique visitors per day

6.5 Enterprise 2.0 collaboration toolset adoption achievements

Contoso found that the following Enterprise 2.0 collaboration technology tools worked very well in their enterprise. My Sites, document libraries, custom lists, as well as team-and-meeting workspaces were regarded as widely accepted and used Enterprise 2.0 collaboration tools. Mr Botes expands on this, stating that:

“The three areas that have stimulated collaboration most within our business include: My Sites, document libraries, and team-and-meeting workspaces. Most of our end-users have configured profiles on their respective My Sites, allowing users to search for skill sets and previous project resources throughout the business. As a business rule, all users are required to configure their My Site profiles with an employee photo, making it easier to identify employees, especially for employees that have recently joined us, as well as to identify employees with associated skills required for specific projects.

Document libraries have been very useful for sharing content and searching for content. But the most valuable of all has been the team-and-meeting workspaces. Presenting one location to find documents and share meetings content, allowing for one version of the truth. In the past, we tried blogs and discussion forums; and to be honest, it has not yet gained much traction within the business”. (Interview_Q10)

Moreover, Mrs Watson mentioned that:

“Co-authoring documents at the same time from a central location has played an instrumental role within our business. Wikis and discussion forums have been used to a lesser extent.” (Interview_Q10)

Contoso makes effective use of multimedia to promote end-user adoption as well. Mr Khoosal explains how:

“We do make use of multimedia to promote user adoption, specifically on our SharePoint landing page. We publish photos of our business functions, for example team-building photos, year-end events, marketing information, brochures and training videos. We try to refresh the multimedia content on a weekly basis, presenting users with something new every week.” (Interview_Q30)

In addition, the questionnaire’s results substantiate the interview statements, suggesting that document library, workspaces and audio-and-video repositories, are perceived as the most useful Enterprise 2.0 collaboration technology toolset for stimulating collaboration.

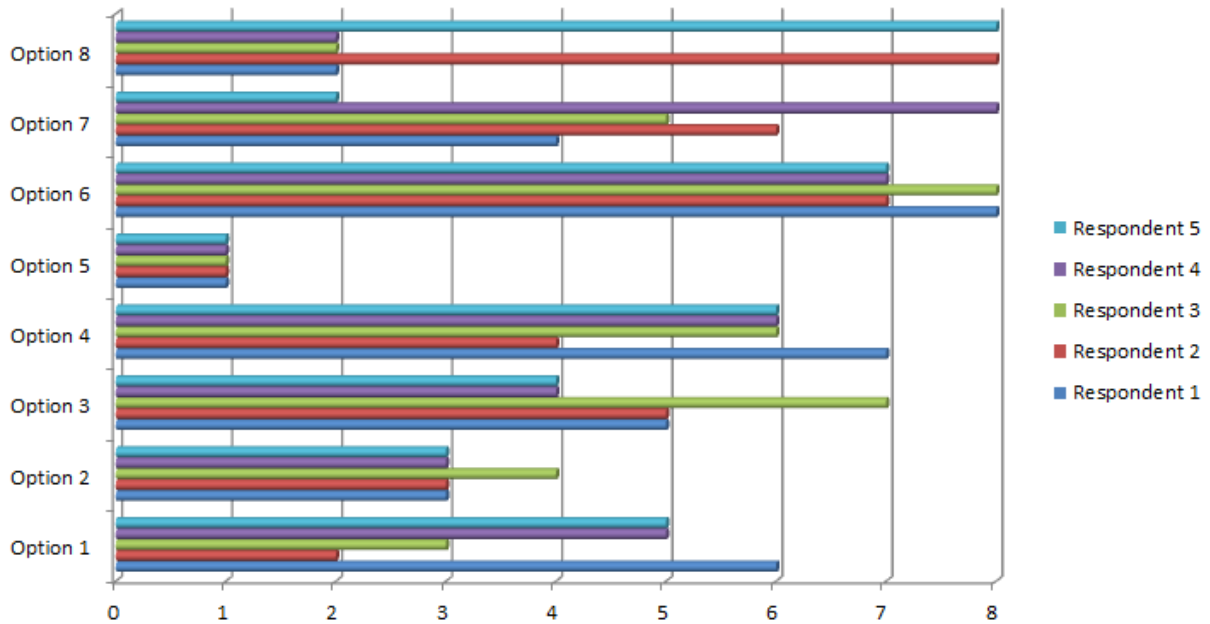


Figure 6.7 - Users perception to useful Enterprise 2.0 collaboration tools

Figure 6.7 presents a graphical view of respondents’ answers received towards questionnaire question 3.6: “Which collaboration technology toolset tools have been most useful to your enterprise in stimulating collaboration?” A lower rating indicates a higher priority in the associated objective. Table 6.4 presents the relationship between each option and associated question posed.

Table 6.4 - Option relation to most useful Enterprise 2.0 collaboration tool questions posed

Option	Question
Option 1	Alerts and RSS notifications.
Option 2	Audio and video repositories.
Option 3	Blogs.
Option 4	Discussion forums.
Option 5	Document repositories.
Option 6	Social networking.
Option 7	Wiki pages.
Option 8	Other. Respondents mentioned team- and meeting workspaces.

Figure 6.8 depicts Contoso’s workspace usage per month. The image represents the number of workspaces created versus the number used (actively) per division. 90% of all workspaces created per division are being actively used. Inactive workspaces are archived after a six-month period. The figure suggests that Contoso end-users are actively participating in team-and-meeting workspaces.

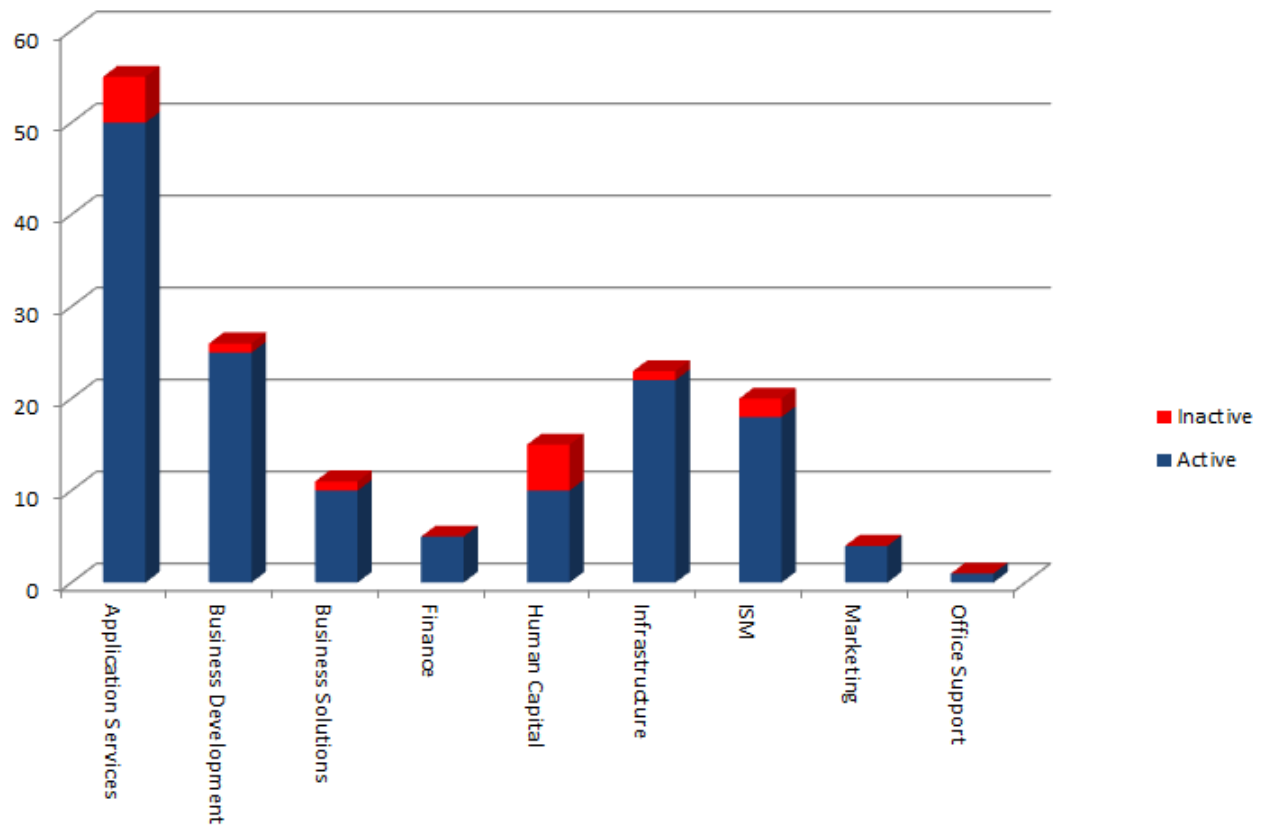


Figure 6.8 - Contoso workspace usage per month tracking - April 2013

6.6 Enterprise 2.0 collaboration – sustainability

Contoso has managed to gain and sustain end-user Enterprise 2.0 collaboration technology participation through their Enterprise 2.0 collaboration technology steering-committee forum. The steering-committee is driven by Contoso’s senior executives, and chaired by Contoso’s chief executive officer (CEO). The primary role of the steering-committee is to address governance, change management, communication, training, awareness, and operational support, as well as to define their Enterprise 2.0 collaboration technology strategic roadmap. According to Mr Botes:

“The role of our steering-committee is to ensure the technical and data integrity of our system, as well as to make investment decisions, to drive user-adoption and expand our SharePoint environment, as well as to attend to governance, change-management, communication, training, and to support any issues or topics that might arise”.
(Interview_Q21)

In addition, the questionnaire results substantiate the interview statement, suggesting that there is enterprise awareness pertaining to the primary roles and functions of the Contoso steering-committee. Figure 6.9 presents a graphic view of the respondents’ answers received to questionnaire question 6.17: *“What are the roles of your collaboration toolset committee?”*

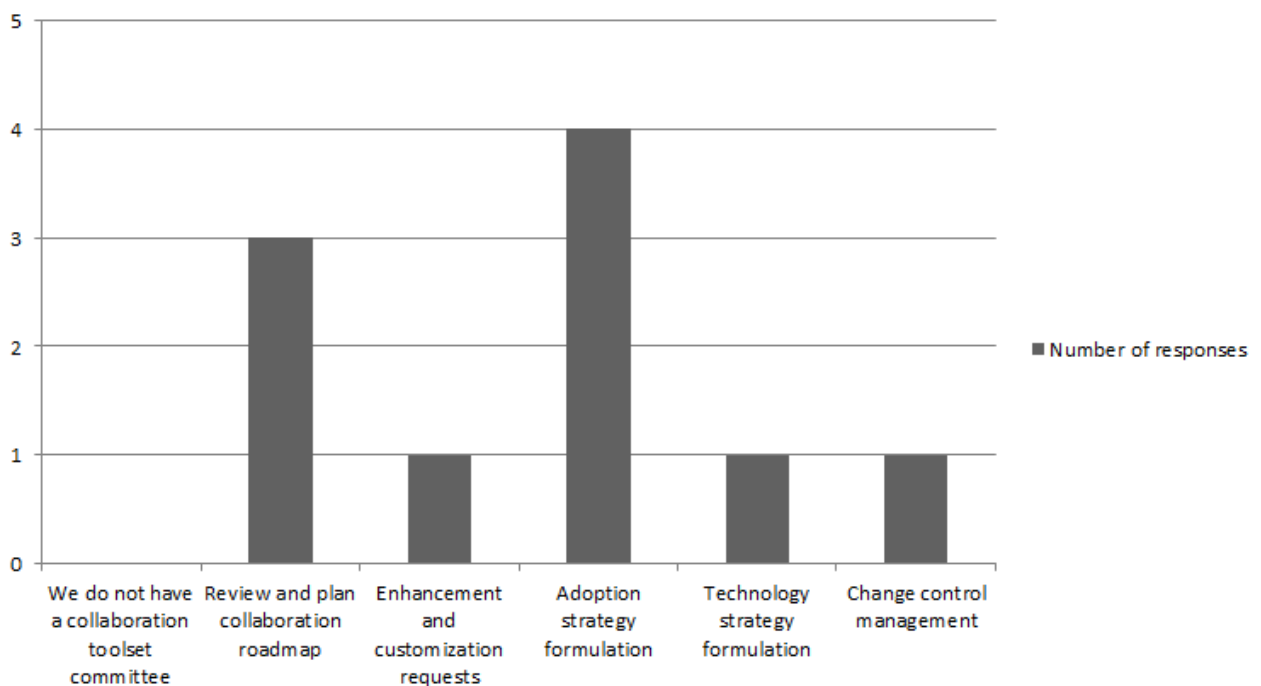


Figure 6.9 - Users perception towards the enterprises steering-committee

Furthermore, Contoso has established a very mature governance framework. Mr Botes explains that:

“Contoso has a very clear organisational structure and accountabilities structure for developing, running and supporting our Enterprise 2.0 collaboration technology solution. The key drivers around our governance framework include: a steering-committee and project sponsor (CEO) that I believe is the most valuable factor; we have a very strong technical support competency internally; we have designated owners within each division and divisional teams, who are accountable for their respective sections; and lastly, we have

service-level agreements from a technological perspective, as well as clearly defined roles-and-responsibilities. The main thing is we have clarity around these roles. There is certainly, no issue around ownership.” (Interview_Q4)

“We have a clear roles-and-responsibilities structure that has been distributed throughout the business. Technology is owned by technical resources; content is owned by our content administrative resources, and business-related aspects are owned by our senior executive team. The roles-and-responsibilities structures are reviewed annually, and aligned to employee Key Performance Indicators (KPIs), where applicable.” (Interview_Q5)

6.6.1 Communication and awareness

One of the primary roles of the Enterprise 2.0 collaboration technology steering-committee is to promote Enterprise 2.0 collaboration technology adoption through continuous training, communication and awareness sessions. Mr Botes elaborates:

“We make use of a monthly newsletter that is distributed to the entire business. This is internally referred to as the ‘In Touch Digest’; it is used to create awareness of current business projects under way, new discussion-forum chats recorded, the progress of our document-migration project onto SharePoint, and tips and tricks around using SharePoint. In addition, we also conduct monthly communication sessions with the various business divisions, distributing project-related information, creating awareness and providing training.” (Interview_Q24)

Figure 6.10 presents an overview of the extent to which Contoso has migrated its historical file-server documentation into Microsoft SharePoint. As at April 2013, 94% of their corporate documentation now resides in Microsoft SharePoint. The migration process is reviewed monthly by Contoso's steering-committee, and communicated back to enterprise end-users via a monthly newsletter.

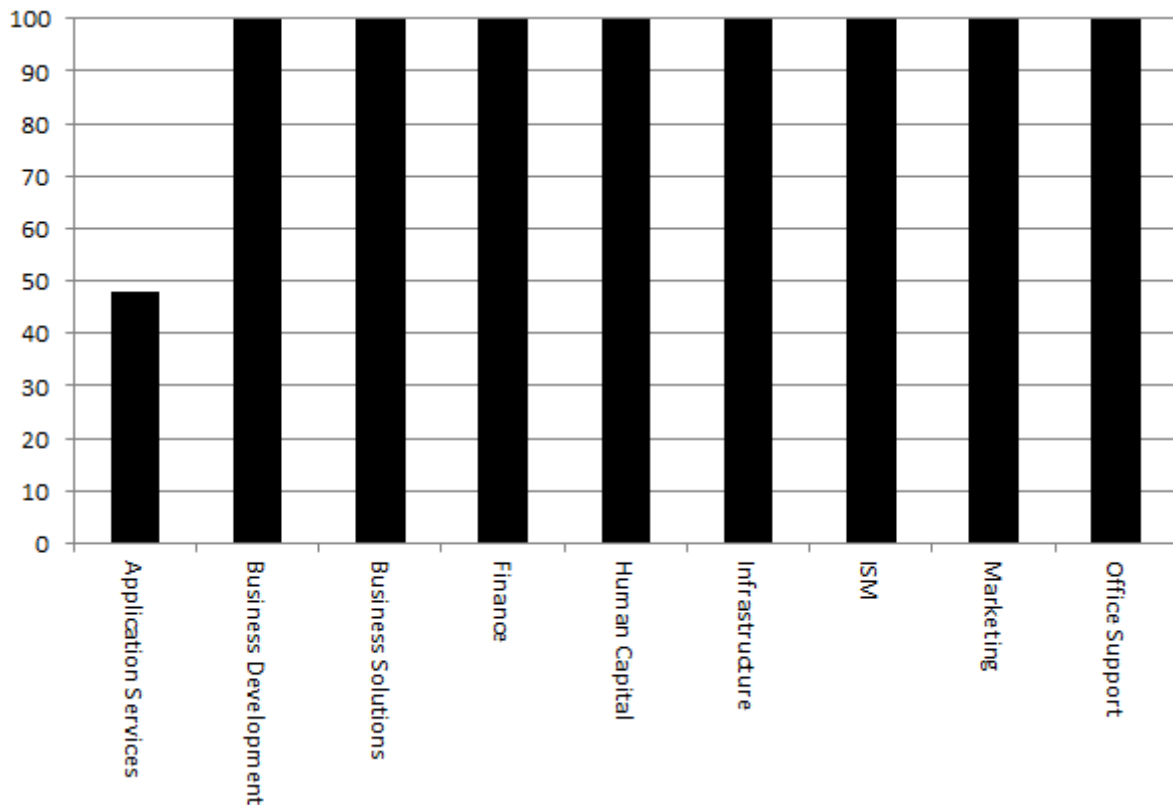


Figure 6.10 - Contoso document migration to Microsoft SharePoint progression example

The remaining 6% of document migrations still in progress are driven by each divisional executive. Any delays are communicated back to the steering-committee, and addressed accordingly.

Figure 6.11 presents an example of a monthly newsletter distributed to Contoso employees, relating to their Enterprise 2.0 collaboration technology toolset. The monthly newsletter example has been censored to protect the enterprise's identity.

LIVE CHAT HANAS ON!





Indeed, the 14th February 2013 is typically a day of long-stemmed roses, chocolates and much showing of affection. But for ██████████ the subject matter expert for our Live Chat, it was all about SAP ERP on HANA.

Some highlights of the conversation:

- SAP HANA is a database that runs on RAM, as opposed to hard disks, and uses advanced compression techniques to reduce the amount of memory needed (to process data). The obvious benefit is that everything runs *much* faster. So processes or tasks that take a long time, e.g. depreciation runs, can be done quicker. But, more importantly, you can get information out of the system almost instantly.

- The SAP HANA appliance and DBMS has a mechanism to effectively and continuously copy all the data that is held in RAM onto disk, so there is always an up to date copy of the data on disk to recover from when the system goes down, if the system goes down.

Some provocative questions to come out of the conversation:

- Should we be redeveloping our Rtr template on the basis of HANA? Will this still include a BW component?
- How do we help customers make sense of this?

You missed out on the chat?! Oh, you poor creature! Never fear, you can find the thread here: [Live Chat – SAP ERP on HANA](#). There'll be another Live Chat session soon (watch out for the meeting request!), and of course you can make suggestions for future topics of discussion! All you need to do is send an email to [Live Chat](#). We look forward to hearing from you!

(P.S. We have to mention – we were delighted to see folks from our ██████████ client site participate in the chat! Just saying...)

THE LATEST ██████████ CHATS:

You're probably wondering what your colleagues are thinking about... Na-ha! Ponder no more! Here're the links to the latest threads on ██████████ Chat – just point and click on the threads that intrigue you:

- [Find any transaction code in SAP](#)
- [SAP expanding presence in China](#)
- [Consignment Stock](#)
- [SAP and HANA](#)
- [10 things extraordinary people say](#)
- [The best pep talk you'll ever hear!](#)
- [You can't always be right – even if you work at Google](#)
- [Women still get paid less than men](#)
- [How to find the Transaction Code in IMG SPRO in SAP](#)

Figure 6.11 - Contoso project In Touch newsletter example

6.6.2 Training curriculum

Contoso regards training as a fundamental building block for end-user participation. A formal Enterprise 2.0 collaboration technology training curriculum has been established for both new and existing employees. According to Mrs Watson:

“All new employees are taken through a comprehensive induction training session, and existing staff are invited to weekly training slots. The training slots provide tips and tricks, as well as an opportunity to address any new questions that might arise by any of our users. In addition, we provide hands-on labs, as well as online theoretical training material. Training is also available on a request basis, based on divisional team requirements”.
(Interview_Q25)

Mr Khoosal expands on the training subject, stating that:

“Initially, training was compulsory to all Contoso employees; this allowed us to get everybody on-board as quickly as possible, and to create the awareness of our business objectives. However, our primary methods of training now form part of our induction process; weekly training slots and online training tutorials.” (Interview_Q25)

6.6.3 Change management

Change management forms a pivotal role in Contoso’s underlying business processes and enterprise culture. Any change made to their Enterprise 2.0 collaboration technology toolset, also has to conform to their internal change-management processes. Mr Botes explains:

“We make use of a simple, light-weight version of change management, and it works fine. It’s all about adequate training and communication to create awareness and to encourage usage. We do not have a separate change-management team, specific to Microsoft SharePoint; but, we do however, make use of our business formal-change management process. It is easy for us to maintain, and all our employees are well aware of our change-management process.”
(Interview_Q26)

6.7 Research findings summarised

In this section, the four supporting research study questions are addressed, in order to answer the primary research question: “*How could generic guiding principles facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment?*” The primary research question is addressed, as well as the proposed guiding principles, are presented in Chapter 7. The four supporting research study questions include:

- **What challenges do enterprises currently face when adopting Enterprise 2.0 collaboration technologies?**

Although Contoso has succeeded in various ways in promoting and sustaining end-user adoption, there is still an element of resistance to change in the enterprise. Five of Contoso’s end-users who completed the research questionnaire selected option two under Questionnaire, question 6.4: How would you describe your enterprise user’s behavioural challenge(s) towards adopting and participating in enterprise collaboration?

“Our enterprise users have formed repetitive routines, and have become comfortable using existing toolsets other than collaboration toolsets, making them resistant to change.”

‘Resistance to change’ forms a major barrier to Enterprise 2.0 collaboration technology adoption. Contoso has managed to overcome this barrier, to a certain extent, by implementing formal awareness, communication and training sessions.

In addition, Contoso makes use of an Enterprise 2.0 collaboration technology steering-committee that reviews adoption progress made on a monthly basis; and it addresses any divisions, departments or end-users that do not contribute to their Enterprise 2.0 collaboration technology strategy through existing formal enterprise processes and underlying Key Performance Indicator (KPI) measurements.

- **What are the challenges to using Enterprise 2.0 collaboration technologies within an enterprise environment?**

The findings suggest ‘time constraints’ and ‘technical issues’, as being Enterprise 2.0 collaboration technology challenges. Two of Contoso’s end-users who completed the research questionnaire rated “*Time Constraints*” as being their greatest challenge to using

their selected Enterprise 2.0 collaboration technology toolset; and the remaining three selected: “*Our enterprise end-users are resistant to change*” under Questionnaire, question 6.2: What are your greatest challenges towards enterprise user participation?

Although ‘resistance to change’ was addressed in question 1, continuous awareness and training sessions could address this challenge to Enterprise 2.0 collaboration technology adoption. Furthermore, Contoso has opted to make use of a hybrid-adoption approach. There is strong commitment from Contoso’s senior management team to break down any barriers to Enterprise 2.0 collaboration technology adoption.

- **What are the critical success factors, for adopting and promoting Enterprise 2.0 collaboration technologies?**

The findings suggest that a top-down sponsorship and support structure is required, in order to promote adoption. In addition, ownership needs to be defined up front, stating the roles-and-responsibilities of all the participants. Furthermore, a formal governance framework, change-management process, communication plan and training and support structure is required, in order to sustain adoption.

- **Which of the various Enterprise 2.0 collaboration technology tools have the potential to encourage collaboration within an enterprise?**

The findings suggest that document libraries are a great place to start. Contoso specifically identified team-and-meeting workspaces, as adoption ‘wins’ in their enterprise; although blogs, wikis and discussion forums were used to a lesser extent. Discussion forums have contributed tremendously to stimulating two-way communication in using their Enterprise 2.0 collaboration technology toolset.

Respondents who completed the research questionnaire ranked *Document libraries* as the most-useful Enterprise 2.0 collaboration technology tool for stimulating collaboration; followed by *Workspaces* and *Audio and Video repositories* under Questionnaire, question 3.6: Which collaboration technology toolset tools have been most useful to your enterprise in stimulating collaboration?

6.8 Chapter summary

This chapter has presented the research case study findings. The findings were discussed in a similar sequence to the approach Contoso followed in relation to their Enterprise 2.0 collaboration technology adoption campaign. Furthermore, Section 6.7 presented a summary overview of the research findings in relation to four supporting research study questions.

The research findings presented valuable insight into the obstacles faced, as well as the key lessons learned during the selected enterprise's, Enterprise 2.0 collaboration technology adoption endeavours. The main contribution from this research study is presented in a set of ten (10) proposed guiding principles in Chapter 7.

Chapter 7 – Interpretation of findings and proposed guiding principles

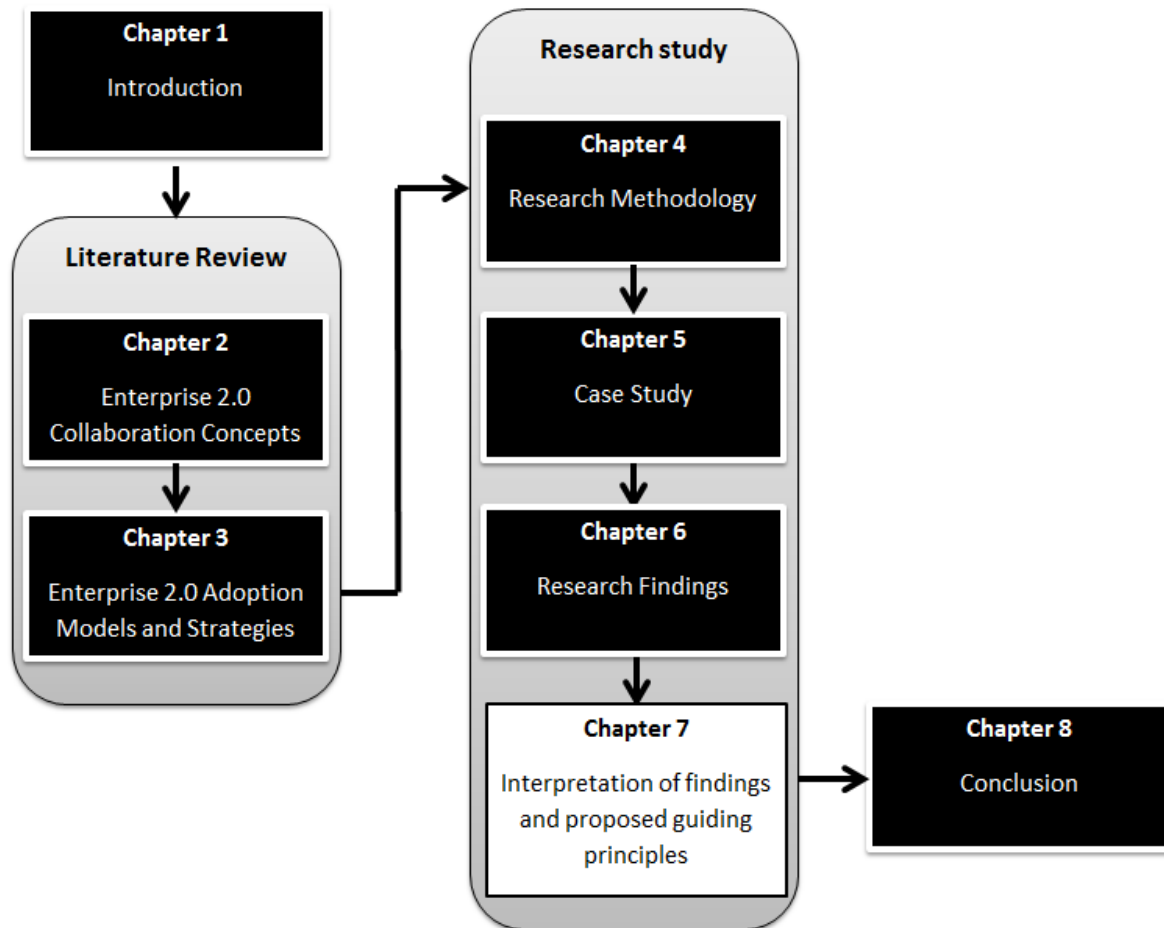


Figure 7.1 - Chapter progression

7.1 Introduction

In this chapter, the key themes identified, in addition to the proposed guiding principles, are introduced. The guiding principles were derived from the case study findings presented in Chapter 6. Furthermore, the guiding principles are validated and assessed via a systematic review of the existing literature, as well as external reviews and comments obtained from two subject-matter experts from independent enterprises.

7.2 Key themes identified

A thematic-analysis technique was used to analyse and interpret the primary data collected, largely through semi-structured interviews and researcher-administered questionnaires, conducted on respondents in the case study enterprise. Furthermore, document analysis was employed as a secondary data source, in order to substantiate the research findings.

As this research study incorporated a qualitative research approach, reliability and validity were issues of great importance. Theoretical, internal, as well as external-validation elements were incorporated throughout this research study, primarily through triangulation.

The guiding principles were assessed and validated against the existing literature, as well as against the external reviews and comments obtained from two external subject-matter experts. The two subject-matter experts, work for enterprises that provide services to a number of industries in South Africa, both employing over 5000 employees. Moreover, both external enterprises have adopted Microsoft SharePoint 2010 as their underlying Enterprise 2.0 collaboration technology platform; and they have both been using Microsoft SharePoint technology for more than five years.

The subject-matter experts selected in these enterprises perform business-analytical roles in their respective enterprises, and have gained significant experience and knowledge in the areas of knowledge-management, as well as enterprise-collaboration. Three key themes emerged from the research findings; these were: **commitment**, **promotion** and **sustainability**. In addition, ten (10) guiding principles were derived from the three key themes, as depicted in Figure 7.2.

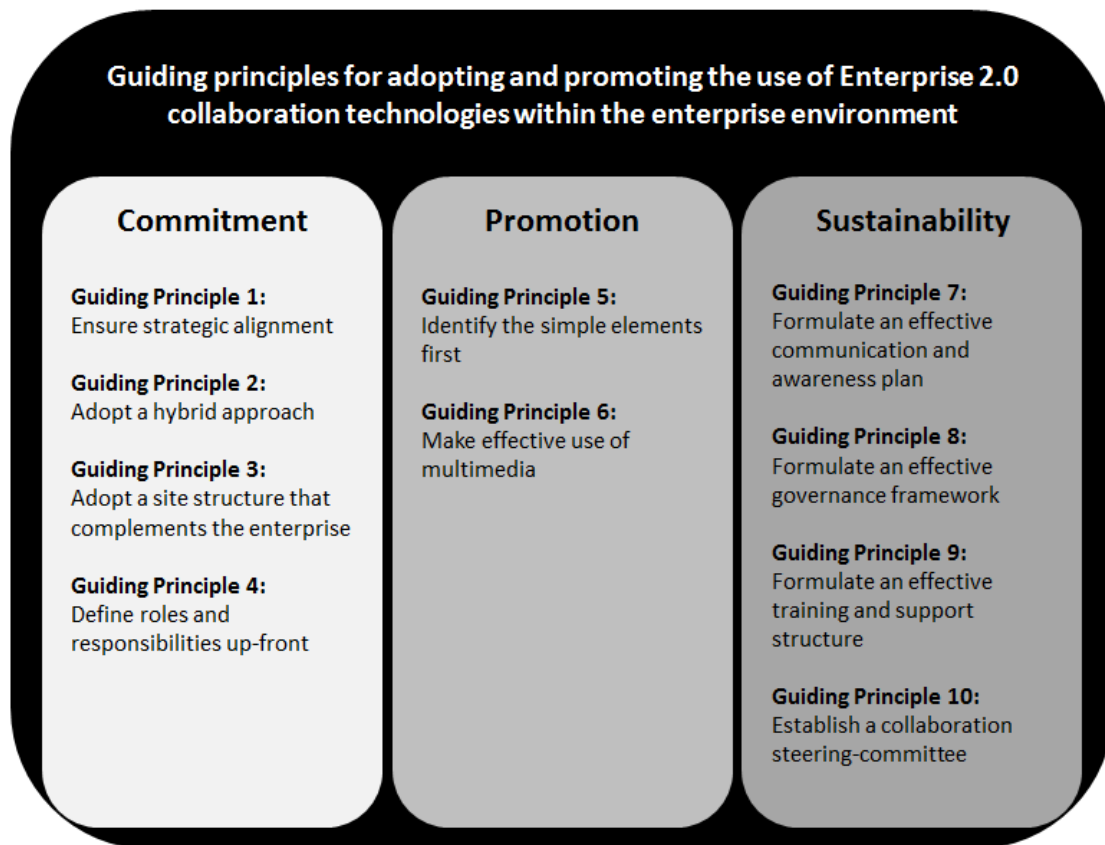


Figure 7.2 - Enterprise 2.0 collaboration technology adoption guiding principles

- **Commitment.** The commitment theme presents four guiding principles that could facilitate end-user commitment for adopting and promoting Enterprise 2.0 collaboration technology toolsets. The four guiding principles include: ensure strategic alignment, adopt a hybrid approach, adopt a site structure that complements the enterprise, and define roles and responsibilities up-front.
- **Promotion.** The promotion theme presents two guiding principles that promote on going end-user participation. The two guiding principles include: identify the simple elements first and, make effective use of multimedia.
- **Sustainability.** The sustainability theme presents four guiding principles that facilitate end-user adoption sustainability towards Enterprise 2.0 collaboration. The four guiding principles include: formulate an effective communication and awareness plan, formulate an effective governance framework, formulate an effective training and support structure and establish a collaboration steering-committee.

7.3 Enterprise 2.0 collaboration technology adoption guiding principles

7.3.1 Guiding principle 1: Ensure strategic alignment

In order to start any journey, “one needs to know where one wants to go”. The same applies in the enterprise environment. Prior to investing in an Enterprise 2.0 collaboration technology toolset, an enterprise first needs to understand what the underlying strategic direction is, as well as the underlying strategic objectives. In Contoso’s case, the three key strategic objectives were:

1. To consolidate Contoso’s position in the market as a leading retailer ICT enterprise.
2. To improve on the delivery of exceptional services as a trusted retail partner.
3. To establish a knowledge-repository, in order to build and sustain Contoso’s retail intellectual property both from a technology and business-operational perspective.

According to Mr John Botes, Contoso’s executive of strategic relations, the three key strategic objectives were formulated based on the decision:

“... to create a centralised location to store and retrieve knowledge and intellectual property (IP), as well as to fast-track the distribution and information of retail knowledge within the enterprise. In addition to this, we also needed a fast and easy way to both share and contribute to retail information.”

Once the strategic direction is understood, the strategic objectives can be translated into business drivers. These in turn, serve as the business-functional requirements. From here, the business functional requirements need to be incorporated into the information-architecture.

Mrs Watson, Contoso’s business analyst and principal knowledge-management consultant explains how:

“A series of workshops were conducted with a number of divisional departments; the workshops allowed us to identify the type of information that would need to be captured, in order to be presented by the underlying Enterprise 2.0 collaboration technology toolset.”

An information-architectural assessment should be conducted, in order to identify the type of content, and the relationships between the content that needs to be hosted, which needs to be distributed by an Enterprise 2.0 collaboration technology toolset.

Furthermore, once the information-architecture has been established, an Enterprise 2.0 collaboration technology toolset gap analysis needs to be conducted. This would assist in selecting an appropriate toolset that could address the information-architecture, as well as the underlying business functional requirements.

Existing literature validation: Hanley (2013) suggests that the enterprise business goals need be clearly defined. The business goals provide the vision and direction towards Enterprise 2.0 collaboration. It is vitally important to answer the ‘What’ and ‘Why’ questions up-front. For example: What does the enterprise wish to achieve by adopting an Enterprise 2.0 collaboration technology toolset? In some instances, it might be to reduce paper-based processes, or to present a central point for locating information in the enterprise.

Furthermore, ensuring top-management participation up-front, as well as defining the enterprise’s strategic objectives could greatly assist in improving the success of an Enterprise 2.0 collaboration technology adoption initiative in the enterprise. Simply put, this would ensure that top management’s requirements and expectations are addressed; and therefore, they would actively support and participate in the Enterprise 2.0 collaboration-adoption initiative (Yehunda, 2009; Paroutis and Saleh, 2009; Schneckenberg, 2009).

External validation: Both of the external enterprise subject-matter experts agreed with this guiding principle, emphasising that the enterprise’s strategy should serve as a guideline in identifying the Enterprise 2.0 collaboration technology objectives. Furthermore, the enterprise strategy should be used to formulate a business-case justification for the underlying investment.

7.3.2 Guiding principle 2: Adopt a hybrid approach

The adoption approach needs to complement the enterprise’s underlying culture. In addition, a hybrid adoption approach could assist in bringing about change within the enterprise. This is vital in sustaining end-user participation. Moreover, it is important to obtain top-management sponsorship and commitment to enterprise collaboration. Top-management buy-in is essential towards Enterprise 2.0 collaboration technology adoption sustainability.

One of the contributing success factors in Contoso’s case is the fact that the CEO has played an active role in promoting Enterprise 2.0 collaboration technology adoption in the enterprise. It is critical for top-management to emphasise the importance of the underlying Enterprise 2.0 collaboration technology toolset towards the enterprise’s associated strategic direction.

Furthermore, it is recommended to align end-user participation against employee Key-Performance Indicators (KPIs). This would ensure that end-user contribution is also aligned with end-users' incentives and rewards.

Existing literature validation: A systematic review of the existing literature corroborates this principle, suggesting that the best path to Enterprise 2.0 collaboration technology adoption would be to adopt a hybrid approach. The top-down element, provides guidance, support and adherence to the strategic objectives, while the bottom-up element allows for autonomy to explore and create content, thus improving participation (Barron and Schneckenberg, 2012; Stocker *et al.*, 2012; Bruno, Marra and Mangia, 2011).

Furthermore, although a bottom-up approach forms an integral part of the adoption process, without the support and commitment from a senior management team, the adoption process could be delayed, or simply not occur at all (Yehunda, 2009).

External validation: Only one of the external enterprise subject-matter experts provided comments on this guiding principle. The subject-matter expert stated that, end-user participation should also be driven through continuous education and team workshops, to ensure that the underlying Enterprise 2.0 collaboration technology toolset addresses the underlying “pain points”. This is a great way to win over end-user participation.

7.3.3 Guiding principle 3: Adopt a site structure that complements the enterprise

Incorporating a site-layout structure that makes logical sense to the enterprise end-users is vitally important. One example could be to implement a site structure that reflects the enterprises underlying organisational structure; a second example would be to implement a site structure that reflects the enterprise's underlying business functions and/or services.

In the case of Contoso, a site-structure layout was adopted that reflects the enterprise's underlying organisational structure. Consistency and predictability in a site structure allow end-users to become comfortable in locating and contributing to content in an Enterprise 2.0 collaboration technology toolset in an efficient manner. Mr Botes explains that:

“The three areas that have stimulated collaboration most within our business include My Sites, document libraries, and team-and-meeting workspaces. Most of our end-users have configured profiles on their respective My Sites, allowing users to search for skill-sets and previous project resources throughout the business.”

Existing literature validation: Most importantly, keep site structures as simple as possible. Where possible create templates for team and collaboration sites, thus allowing for a consistent and repeatable look-and-feel throughout the Enterprise 2.0 collaboration technology toolset (Murugesan, 2007; Christidis, Gregoris and Dimitris, 2011).

External validation: Both of the external enterprise subject-matter experts agreed with this guiding principle. In addition, a combination approach could also be used, consisting of both an organisational structure and a product/service-oriented structure. Furthermore, it is important to obtain end-user feedback throughout the site-structure design process, to ensure that it makes logical sense to end-users. In addition, obtaining end-user participation at this stage, could improve end-user participation significantly; since they form part of the design process.

7.3.4 Guiding principle 4: Define roles and responsibilities up-front

In order for any information system (IS) or Enterprise 2.0 collaboration technology toolset to succeed, it is vitally important to define the associated roles-and-responsibilities needed to sustain the underlying technology toolset. In the case of Contoso, a clear roles-and-responsibilities structure was formulated and distributed throughout the enterprise.

In addition, the roles-and-responsibilities structure should be reviewed annually and aligned with employee Key-Performance Indicators (KPIs), where applicable. This ensures that there is constant revision and alignment of the associated roles-and-responsibilities with the Enterprise 2.0 collaboration technology toolset. Mr Botes explains that:

“We have a clear roles-and-responsibilities structure that has been distributed throughout the business. Technology is owned by technical resources; content is owned by our content administrator resources, and business-related aspects are owned by our senior executive team. The roles-and-responsibilities structure are reviewed annually and aligned with employee KPIs, where applicable.”

Existing literature validation: The roles-and-responsibilities associated with an Enterprise 2.0 collaboration technology toolset should form part of an enterprise’s underlying operational policies. Furthermore, it is important to define what each end-user’s responsibility would be, in sustaining Enterprise 2.0 collaboration (Yehunda, 2009, Bushell, 2008).

Bruno, Marra and Mangia (2011) suggest that the roles-and-responsibilities should be aligned on the basis of end-user skills, rather than their position in the enterprise. Furthermore, it is important to identify content authorship and ownership early on, in order to ensure high quality content contributions.

Hanley (2013) suggests that existing end-user roles-and-responsibilities be reviewed by the enterprise's Human Resource department, as the very nature of Enterprise 2.0 collaboration technology tools may require a different type of job description compared with traditional job descriptions.

External validation: Both of the external enterprise subject-matter experts provided comments on this guiding principle. The first subject-matter expert agreed and extended on this principle, stating that a roles-and-responsibility model should not only be based on individual end-users, but also on the departmental level, in order to ensure team participation.

The second subject-matter expert did not agree with this principle, stating that:

“In my opinion, feedback from HR might only be useful in personnel/staff-related requirements/solutions.”

7.3.5 Guiding principle 5: Identify the simple elements first

Identify one or two simple ‘quick win’ elements that could address any enterprise-related problems with the least amount of effort. This could go a long way in gaining end-user participation. One example could be to automate a simple, yet repetitive business process (e.g. on-boarding new employees within the enterprise).

A second approach could be to mash-up information from other information systems in the Enterprise 2.0 collaboration technology toolset (for example, creating a central view of procurement and supplier related information in one web page view). This reduces the time and effort of correlating data from various information systems. Mr Nitesh Khoosal, Contoso's information technology manager explained that:

“A requirements assessment was performed to identify the areas, most likely to bring about quick wins; we ran workshops with the different divisions to establish a ‘heat map’ distinguishing between the ‘must haves’, ‘prefer to have’, ‘nice to have’, and the ‘not usually required’ features. We then made use of a gap analysis to determine whether our existing SharePoint platform could address these requirements.”

Existing literature validation: Initially concentrate on building little applications that end-users find appealing. Examples could include a voting poll; a discussion forum or wiki pages to discuss new business topics in the relation to the enterprises associated industry, as well as integrating the associated Enterprise 2.0 collaboration technology toolset with Microsoft Outlook if possible. By integrating with Microsoft Outlook, end-users are presented with an existing well-known user interface, as well as an easy, yet effective way of finding and contributing towards content (Jandoš, 2009; Mobasseri, 2013; Willinger, 2013).

External validation: Both of the external enterprise subject-matter experts agreed with this guiding principle. One of the subject-matter experts provided comments towards this guiding principle, stating that:

“Focusing on quick wins is vital as many people are sceptical about the value of collaboration until they see it delivering some benefit to them.”

7.3.6 Guiding principle 6: Make effective use of multimedia

Avoid information overload by incorporating large amounts of static text and diagrams into site pages. Rather make use of multimedia, including short videos, no longer than two minutes each, as well as photos and images.

It is important to ensure that when multimedia is used, the content is updated at least every two to four weeks. One example could be to publish enterprise event photos onto the Enterprise 2.0 collaboration technology toolset landing page as well as publishing one or more video clips. The video clips could include short interviews with top management representatives, or new industry trends, for example. Multimedia has a tremendous amount of potential to draw end-user participation. Mr Khoosal explains how:

“We do make use of multimedia to promote user adoption, specifically on our SharePoint landing page. We publish photos of our business functions, for example team building photos, year-end events, marketing information, brochures and training videos. We try to refresh the multimedia content on a weekly basis, presenting users with something new every week.”

Existing literature validation: Multimedia can be an effective mechanism to lure end-users to your Enterprise 2.0 collaboration technology toolset. It is important to publish content in the form of images, photos and video content (Mobasseri, 2013; Willinger, 2013). In addition

a well-branded Enterprise 2.0 collaboration technology toolset, which end-users find visually appealing, can generate a large volume of end-user traffic (Consoli and Musso, 2010).

External validation: Only one of the external enterprise subject-matter experts agreed with this guiding principle. The second subject-matter expert emphasised that, although multimedia presents a visually appealing platform to present information, it can however, present a number of challenges, stating that:

“Multimedia works great as people take to it more easily. Multimedia unfortunately carries a hefty infrastructure bill relating to hardware and networks and the production of such content. One example, is a company releasing an announcement to 20 000 employees all at once, no single server configuration or day-to-day WAN connection will serve such demand all at once. Multimedia in this instance fails miserably because of how difficult it is to deliver it (all at once to the masses).”

7.3.7 Guiding principle 7: Formulate an effective communication and awareness plan

As with most enterprise information systems, in order to gain participation, end-user awareness and support structures are required. It is important to address the ‘What is in it for me?’ question when establishing end-user awareness. The more exposure end-users gain from the chosen Enterprise 2.0 collaboration technology toolset, pertaining to its capabilities, the more likely effective end-user adoption will occur.

An Enterprise 2.0 collaboration technology adoption strategy should also incorporate a formal communication plan. The communication plan needs to address the frequency of communication, type of content and end-user audience who needs to be informed. Mr Khoosal explains:

“User adoption does not occur overnight. Time is required to allow users to transition. It is important to get users involved from the beginning, especially during the planning stage. Also very importantly, make sure there is adequate communication and training sessions. User awareness is vital towards success.”

Existing literature validation: Communication is a critical success factor towards end-user Enterprise 2.0 collaboration technology adoption. Communication creates awareness, expectations, and serves as a delivery vehicle to promote Enterprise 2.0 collaboration technology capabilities (De Hertogh, Viaene and Guido, 2011; Williams, 2011).

External validation: Both of the external enterprise subject-matter experts agreed with this guiding principle. It is important to build a communication strategy that targets end-users through various mechanisms, including training, enterprise newsletters and publications, team workshops and collaboration sessions with senior executives.

7.3.8 Guiding principle 8: Formulate an effective governance framework

As with most information systems, Enterprise 2.0 collaboration technologies require governance. An Enterprise 2.0 collaboration technology governance framework needs to be established and maintained. The governance framework needs to compliment the enterprises strategic objectives, as well as clearly define the roles-and-responsibilities in relation to participation.

In addition, the governance framework needs to incorporate a clear decision-making authority. The decision-making authority should formulate the Enterprise 2.0 collaboration technology roadmap, training and communication programme, as well as promote end-user participation. The research suggests that an Enterprise 2.0 collaboration technology governance framework, should address the following elements:

- It needs to be aligned towards the enterprise strategic objectives.
- It must define the roles, responsibilities and accountability of participation.
- It needs to incorporate a clear decision-making authority process.
- It needs to incorporate the policies, procedures and site guiding principles.
- It must be communicated to ensure awareness.

Mr Botes explains that:

“Contoso has a very clear organisational structure and accountabilities structure for developing, running and supporting our Enterprise 2.0 collaboration technology solution. The key drivers around our governance framework include, a steering-committee and a project sponsor (CEO) that I believe are the most valuable factors; we have a very strong technical support competency internally; we have designated owners within each division and divisional teams, who are accountable for their respective sections; and lastly, we have service level agreements from a technology perspective, as well as clearly defined roles-and-responsibilities defined. The main thing is we have clarity around these roles...”

Existing literature validation: It is important for the senior management team to take an active role in both defining and enforcing the associated Enterprise 2.0 collaboration toolset governance framework (Bushell, 2008). Although a governance framework is vital towards a successful Enterprise 2.0 collaboration technology adoption strategy, it should not be a barrier towards end-user participation. De Hertogh, Viaene and Guido (2011) suggest that a governance framework should also incorporate the following four grounding principles:

- **The empowerment principle.** End-users should be given sufficient autonomy to explore and master Enterprise 2.0 collaboration technology toolsets. The novelty of Enterprise 2.0 collaboration technologies sparks the curiosity and enthusiasm of end-users to adopt the technology toolset.
- **The processes principle.** Enterprise 2.0 collaboration technologies present enterprises with the ability to improve on, or rather to automate certain business-process elements. End-users should be granted sufficient autonomy to exploit these business benefits.
- **The collaboration principle.** Top-and-middle management should be wary of limiting too much access as this would have a direct impact on end-users' ability to contribute and distribute the contents for collaboration purposes.
- **The people-and-culture principle.** This continuously, guides and convinces potential participants of the business value of Enterprise 2.0 collaboration technologies. Training and awareness should form a critical element of the chosen governance strategy and implementation plan.

External validation: Both of the external enterprise subject-matter experts agreed with this guiding principle. They emphasize that accountability should be clearly defined and communicated. The first subject matter expert stated that:

“We acknowledge the importance of governance through our organisational structure and KPI interventions. We have also ensured accountability through division-level ownership and a centralised steering-committee.”

7.3.9 Guiding principle 9: Formulate an effective training and support structure

A training and support structure needs to be established. The training programme needs to incorporate both online training content, as well as workshop training sessions to allow for questions and answers, that might not be addressed by the available online or printed training content.

A support structure should provide enterprise end-users with the ability to log and track Enterprise 2.0 collaboration technology related issues and requests. Furthermore, it is recommended to make use of an incident-and-problem management system, and where possible to incorporate service level agreements (SLA).

An effective training and support structure can assist greatly in providing Enterprise 2.0 collaboration technology awareness; and it addresses concerns rapidly. Mrs Watson explains:

“All new employees are taken through a comprehensive induction-training session, and existing staff are invited to weekly training slots. The training slots provide tips and tricks, as well as an opportunity to address any new questions that might arise by any of our users. In addition, we provide hands-on labs as well as online theoretical training material. Training is also available on a request basis based on divisional team requirements.”

Existing literature validation: Yehunda (2009) suggests leveraging the enthusiasm of early adopters within the enterprise to assist end-users in transitioning to Enterprise 2.0 collaboration. In addition, an effective training programme should be conducted at least monthly within the enterprise in order to address the ‘How-To’ questions that arise. Furthermore, it is also important to review the training content on a regular basis, as the enterprise end-users mature in the use of the underlying Enterprise 2.0 collaboration technology toolset.

External validation: Both of the external enterprise subject-matter experts agreed with this guiding principle. In addition, an Enterprise 2.0 collaboration technology training strategy should also be incorporated into an enterprise-induction programme. This would help fast-track new employees. Furthermore, it is essential to ensure that support resources have the correct skillsets to maintain the underlying Enterprise 2.0 collaboration technology toolset, stating that:

“Equally important is that the personnel who have to train and/or support the users that log the calls are up-to-speed as well.”

7.3.10 Guiding principle 10: Establish a collaboration steering-committee

The steering-committee could serve as a decision-making authority body. The roles-and-responsibilities of the decision-making authority would be to formulate the Enterprise 2.0 collaboration technology roadmap, training and communication programme, as well as promoting end-user participation.

It is recommended that the decision-making authority consists of top-management, content management, change management, process management and information-technology support end-users. Mr Botes explains how:

“The role of our steering committee is to ensure the technical and data integrity of our system, as well as to make investment decisions, to drive user adoptions, and expand our SharePoint environment, as well as to attend to governance, change management, communication, training and support issues, or topics that might arise.”

Existing literature validation: The role of a steering-committee is to both represent the concerns of the end-users, as well as to serve as a bridge between the Enterprise 2.0 collaboration technology toolset adoption-campaign efforts and the underlying end-users. One of the primary roles of the steering-committee is to bring about change towards transitioning towards Enterprise 2.0 collaboration (Yehunda, 2009; Bruno, Marra and Mangia, 2011).

External validation: Both of the external enterprise subject-matter experts agreed with this guiding principle. Emphasising that top management support and sponsorship plays a pivotal role in the Enterprise 2.0 collaboration technology adoption campaign.

7.4 Chapter summary

The proposed guiding principles are presented as the main contribution from the research study. In addition, the guiding principles were assessed and validated against the existing literature, as well as external reviews and comments obtained from two independent subject-matter experts. Furthermore, three key themes emerged based on the thematic-analysis, they include: commitment, promotion and sustainability. In addition, ten (10) guiding principles were proposed from the three key themes as presented in Section 7.3.

Chapter 8 – Conclusion

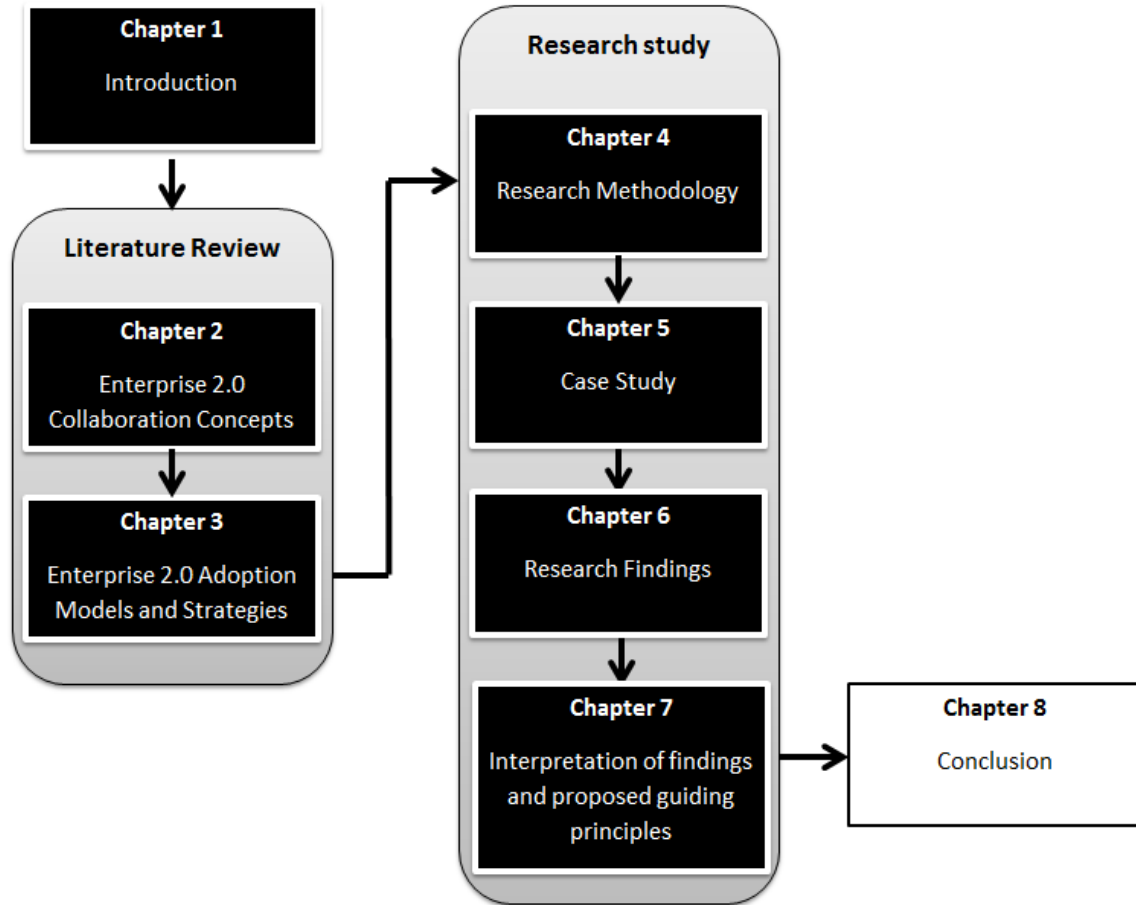


Figure 8.1 - Chapter progression

8.1 Introduction

In this final chapter, an overview of the achievements, as well as the shortcomings of this research is presented. Moreover, this chapter consists of four sections. Section 8.2 presents an overview of the research study conducted. Section 8.3 maps the research questions to the research findings. Section 8.4 presents the research study contribution towards the existing body of knowledge; and in conclusion, Section 8.5 presents future potential research projects.

8.2 Overview

The purpose of this study was to identify and assess the guiding principles that could assist enterprises in adopting and promoting Enterprise 2.0 collaboration technologies in the enterprise environment.

The study incorporated a qualitative research approach. An exploratory case study research technique was used to gather data from a large South African ICT enterprise operating in the retail sector based in, Johannesburg. The selected enterprise was purposefully chosen because it had been actively using an Enterprise 2.0 collaboration technology toolset for three years, and had gained significant insight and experience in promoting and sustaining end-user adoption of Enterprise 2.0 collaboration technology toolsets.

The enterprise provided valuable insights into the challenges experienced, as well as the lessons learned during the adoption of their Enterprise 2.0 collaboration technology toolset. Enterprise end-users were selected via purposive sampling. Semi-structured interviews were conducted on three (3) end-users, comprising a business analyst, a technology specialists and a senior executive.

In addition, researcher-administered questionnaires were completed by five (5) end-users, who actively use their Enterprise 2.0 collaboration technology toolset on a daily basis, performing operational, as well as business administrative tasks. Furthermore, document analysis was employed as a secondary data source, in order to substantiate the research findings. The case study was presented in Chapter 5, and the research findings in Chapter 6.

The main contribution in this research study is a set of ten (10) proposed guiding principles. The guiding principles can be applied by enterprises, either planning to or in the process of adopting, an Enterprise 2.0 collaboration technology toolset. The guiding principles were presented and discussed in Chapter 7.

8.3 Summary of the research findings

The primary research question posed in Section 1.4 was: “*How could generic guiding principles facilitate the adoption and promotion of Enterprise 2.0 collaboration technologies within an enterprise environment?*” The following supporting questions were posed and answered in Section 6.7:

- **What challenges do enterprises currently face when adopting Enterprise 2.0 collaboration technologies?**

‘*Resistance to change*’ presents the primary barrier to the adoption of Enterprise 2.0 collaboration technology.

- **What are the challenges to using Enterprise 2.0 collaboration technologies within an enterprise environment?**

The research findings suggest two primary challenges to the use of Enterprise 2.0 collaboration technologies from an end-user perspective. The two primary challenges include: ‘*Time constraints*’. End-users become bogged down in a repetitive routine, finding it difficult to try new forms of collaborating. Secondly: ‘*Resistance to change*’. This is closely related to the time constraints; however, enterprise culture has a significant impact on end-users’ ability to change to a new way of working.

- **What are the critical success factors, for adopting and promoting Enterprise 2.0 collaboration technologies?**

The research findings suggest that top-down sponsorship and a support structure are required, in order to drive adoption. In addition, ownership needs to be defined up-front, stating the roles-and-responsibilities of all the participants, as well as a formal governance framework, a change-management process, a communication plan, and training and support structure are required.

- **Which of the various Enterprise 2.0 collaboration technology tools have the potential to encourage collaboration within an enterprise?**

The research findings suggest that document libraries are a great place to start. The case study enterprise specifically identified team-and-meeting workspaces as adoption ‘wins’ within their enterprise. Although blogs, wiki’s and discussion forums were used to a

lesser extent, discussion forums have contributed tremendously to stimulating two-way communication by using their Enterprise 2.0 collaboration technology toolset.

To answer the primary research question, the following ten (10) guiding principles were proposed in Section 7.3:

- **Guiding Principle 1:** Ensure strategic alignment
- **Guiding Principle 2:** Adopt a hybrid approach
- **Guiding Principle 3:** Adopt a site structure that complements the enterprise
- **Guiding Principle 4:** Define roles and responsibilities up-front
- **Guiding Principle 5:** Identify the simple elements first
- **Guiding Principle 6:** Make use of Multimedia
- **Guiding Principle 7:** Formulate an effective communication and awareness plan
- **Guiding Principle 8:** Formulate an effective governance framework
- **Guiding Principle 9:** Formulate an effective training and support structure
- **Guiding Principle 10:** Establish a collaboration steering-committee

8.4 Contributions

A significant amount of research has already been conducted in relation to identifying the key benefits, as well as the challenges that enterprises face when adopting and promoting Enterprise 2.0 collaboration technologies in the enterprise environment. However, very few research studies have been conducted on identifying and assessing the underlying guiding principles required in facilitating the adoption of sustainable Enterprise 2.0 collaboration technology in the enterprise environment.

This study contributes towards the current body of knowledge by proposing a set of guiding principles that could be applied by enterprises currently using or planning to adopt Enterprise 2.0 collaboration technology toolsets. General conclusions were drawn from our primary data collected using semi-structured interviews and questionnaires. The findings were analysed and validated through a systematic review of the existing literature, as well as external reviews obtained from two subject-matter experts from independent enterprises.

8.5 Future research projects

Although the proposed guiding principles could greatly facilitate end-user adoption, future research is required, in order to assess the extent to which these guiding principles should be incorporated into an adoption strategy. Moreover, the research data were limited to a single case study. Future research projects could include the following:

- Evaluating the identified guiding principles for enterprises in other geographical locations, as well as in other industries.
- Evaluating the effectiveness of the guiding principles towards end-user adoption.
- Assessing the extent to which the guiding principles should be incorporated into an Enterprise 2.0 collaboration technology adoption strategy.

8.6 Chapter summary

In this final chapter, the achievements and shortcomings of the research study have been presented. Moreover, the chapter has presented the research study's contributions to the existing body of knowledge, as well as possible future research projects to be explored.

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Appendix A: UNISA research ethical clearance letter



Mr R Louw (40766470)
School of Computing
UNISA
Pretoria

2013-03-26

Permission to conduct research project

Ref: 052/RL/2013

The request for ethical approval for your MSc (Computing) research project entitled "Guiding principles for adopting and promoting the use of Enterprise 2.0 collaboration technologies within the enterprise environment." refers.

The College of Science, Engineering and Technology's (CSET) Research and Ethics Committee (CREC) has considered the relevant parts of the studies relating to the abovementioned research project and research methodology and is pleased to inform you that ethical clearance is granted for your study as set out in your proposal and application for ethical clearance.

Therefore, involved parties may also consider ethics approval as granted. However, the permission granted must not be misconstrued as constituting an instruction from the CSET Executive or the CSET CREC that sampled interviewees (if applicable) are compelled to take part in the research project. All interviewees retain their individual right to decide whether to participate or not.

We trust that the research will be undertaken in a manner that is respectful of the rights and integrity of those who volunteer to participate, as stipulated in the UNISA Research Ethics policy. The policy can be found at the following URL:

http://cm.unisa.ac.za/contents/departments/res_policies/docs/ResearchEthicsPolicy_apprvCounc_21Sept07.pdf

Please note that if you subsequently do a follow-up study that requires the use of a different research instrument, you will have to submit an addendum to this application, explaining the purpose of the follow-up study and attach the new instrument along with a comprehensive information document and consent form.

Yours sincerely

A handwritten signature in black ink, appearing to be "R. Louw", is written over a stylized wave graphic in blue and red.

Chair, School of Computing Ethics Sub-Committee

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Appendix B: Information consent letter



Letter of informed consent to be signed by all respondents

Research Project:

Guiding principles for adopting and promoting the use of Enterprise 2.0 collaboration technologies within the enterprise environment

Researcher: Mr. R.L. Louw / **Supervisor:** Dr. J Mtsweni

School of Computing

College of Science, Engineering and Technology

University of South Africa

Dear Prospective participant

I am conducting research for my Master of Science (MSc) studies. I would like to request your participation in this study. The study focuses on exploring the challenges that South African enterprises face when adopting and promoting Enterprise 2.0 collaboration technologies. It will also seek to identify and assess the critical success factors for creating a collaborative culture within an enterprise environment.

Research data will be gathered by means of paper-based questionnaires and semi-structured interviews. Thereafter the documents will be scanned into electronic format. All electronic data will be encrypted and password-protected. Data collected will remain confidential, but it can only be disposed of, after five years to comply with the universities rules. After five years all electronic data will be destroyed and paper-based documentation shredded.

I _____ (full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project. I consent to participating in the research project. I also understand that I

am at liberty to withdraw from the interview or from completing the questionnaire at any time, should I so desire. I hereby give permission that my responses may be used in the above research project, provided that none of my personal details will be made public in the published research report.

Signature: _____ **Date:** _____

Appendix C: Published journal article (IJACSA)

As part of the external validation of this research study a journal article was submitted and approved for publication by the International Journal of Advanced Computer Science and Applications (IJACSA). The journal article was published as volume 4, issue 6 June 2013 and can be accessed here:

<http://thesai.org/Publications/ViewIssue?volume=4&issue=6&code=IJACSA>

The quest towards a winning Enterprise 2.0 collaboration technology adoption strategy

Abstract—Although Enterprise 2.0 collaboration technologies present enterprises with a significant amount of business benefits; enterprises are still facing challenges in promoting and sustaining end-user adoption. The purpose of this paper is to provide a systematic review on Enterprise 2.0 collaboration technology adoption models, challenges, as well as to provide emerging statistic approaches that purport to address these challenges.

The paper will present four critical Enterprise 2.0 adoption elements that need to form part of an Enterprise 2.0 collaboration technology adoption strategy. The four critical elements were derived from the ‘SHARE 2013 for business users’ conference conducted in Johannesburg, South Africa 2013, as well as a review of the existing literature. The four adoption elements include enterprise strategic alignment, adoption strategy, governance, and communication, training and support.

The four critical Enterprise 2.0 adoption elements will allow enterprises to ensure strategic alignment between the chosen Enterprise 2.0 collaboration technology toolset and the chosen business strategies. In addition by reviewing and selecting an appropriate adoption strategy that incorporates governance, communication and a training and support system, the enterprise can improve its ability towards a successful Enterprise 2.0 adoption campaign.

Appendix D: Published conference paper (ICAST 2013)

As part of the external validation of this research study a conference paper was submitted and accepted by the Adaptive Science and Technology (ICAST), 2013 International Conference on. IEEE, 2013. More information pertaining to the ICAST 2013 conference paper can be located here:

<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6707502&contentType=Conference+Publications>

Guiding principles for adopting and promoting Enterprise 2.0 collaboration technologies

Abstract—Enterprise 2.0 collaboration technologies offer enterprises a significant amount of benefits and opportunities, such as improved communication, collaboration, creativity, and innovation. However, enterprises are still facing a number of challenges in promoting and sustaining end-user adoption of these technologies.

The purpose of this paper is therefore to present the results of an in-depth study conducted to gain an understanding of the end-user adoption challenges experienced by enterprises when implementing Enterprise 2.0 collaboration technology toolsets within their specific environment. The study adopted a qualitative research approach by conducting an exploratory case study on a large South African information and communications technology (ICT) enterprise operating within the retail sector based in Johannesburg.

The research results suggest that an effective Enterprise 2.0 collaboration toolset adoption strategy should incorporate at least ten (10) guiding principles with the primary focus on the strategic alignment and usage of a hybrid approach.

Appendix E: Researcher-administered questionnaire

Overview:

This study focuses on exploring the challenges that South African enterprises face when adopting and promoting Enterprise 2.0 collaboration technologies. It will also seek to identify and assess the critical success factors for creating a collaborative culture within an enterprise environment. The questionnaire will take approximately 30 minutes and consists of the following sections:

- **Section 2 – Collaboration toolset information**
- **Section 3 – Collaboration toolset usage information**
- **Section 4 – Collaboration toolset application and integration usage**
- **Section 5 - Collaboration toolset support and training**
- **Section 6 - Collaboration toolset adoption and participation**

The questions within this questionnaire have been formulated to address the following four research questions:

1. What challenges do enterprises currently face when adopting Enterprise 2.0 collaboration technologies? **(Section 6)**
2. What are the challenges to using Enterprise 2.0 collaboration technologies within an enterprise environment? **(Section 5 and 6)**
3. What are the critical success factors, for adopting and promoting Enterprise 2.0 collaboration technologies? **(Section 2 and 3)**
4. Which of the various Enterprise 2.0 collaboration technology tools have the potential to encourage collaboration within an enterprise? **(Section 2,3 and 4)**

Ethical considerations:

The following questionnaire conforms to UNISA's research ethics policy (2007). The interview upholds the following ethical considerations:

- Respondents identified will be protected. Any information pertaining to the respondent's identity will be kept confidential and will not be released with the research results.
- Each enterprise's identity will be protected. Any information pertaining to the enterprises identity will be kept confidential and will not be released with the research results, unless written consent is obtained from the selected enterprise.
- Prior to interviewing or administering questionnaires to respondents, the objectives, risks and nature of the research will be explained.
- Respondent's participation will be voluntary, and they will not be obligated to answer all questions.
- All research data collected will be stored and secured for a period of five (5) years. There after all paper-based and electronic documentation will be destroyed.

Recording of data collected:

The following questionnaire form will be completed by pen. Thereafter the questionnaire document will be scanned into electronic format. All electronic data will be encrypted and password-protected. Data collected will remain confidential, but it can only be disposed of, after five years to comply with the universities rules. After five years all electronic data will be destroyed and paper-based documentation shredded.

In addition the questionnaire may be recorded in order to assist in administrating the questionnaire and analysing the research data.

Section 2 – Collaboration toolset information:

Overview:

The following questionnaire section will present a number of questions pertaining to the enterprise's chosen enterprise collaboration technology toolset. The objective is to identify and classify the criteria for selecting the chosen collaboration technology toolset.

<p>Q2.1</p>	<p><i>(Select one or more applicable answers)</i></p> <p>Which of the following collaboration technology toolsets does your enterprise make use of?</p>	<input type="checkbox"/> Backbase <input type="checkbox"/> Convisint <input type="checkbox"/> Google <input type="checkbox"/> IBM WebSphere <input type="checkbox"/> Microsoft SharePoint <input type="checkbox"/> Open Text <input type="checkbox"/> Oracle WebCenter <input type="checkbox"/> Red Hat JBoss <input type="checkbox"/> SAP CRM <input type="checkbox"/> Tibco Software <input type="checkbox"/> WebEx <input type="checkbox"/> Other
<p>Q2.2</p>	<p>If other, please elaborate:</p>	
<p>Q2.3</p>	<p>How many years has the chosen collaboration technology toolset been in production? <i>(select only one option)</i></p>	<input type="checkbox"/> Less than one year <input type="checkbox"/> One year <input type="checkbox"/> Two years <input type="checkbox"/> Three years <input type="checkbox"/> Four years <input type="checkbox"/> Five years <input type="checkbox"/> More than five years
<p>Q2.4</p>	<p><i>Rank based on importance (1 representing the highest importance.)</i></p> <p>Which of the following criteria best describes your enterprise's decision in investing in the selected collaboration technology toolset?</p>	<input type="checkbox"/> To achieve our strategic objectives <input type="checkbox"/> To control costs <input type="checkbox"/> To developing new products and/or services <input type="checkbox"/> To encourage idea generation <input type="checkbox"/> To facilitate decision making and solving problems <input type="checkbox"/> To improve our product and/or service orientation <input type="checkbox"/> To increase capacity <input type="checkbox"/> To increase profitability <input type="checkbox"/> To increase market leadership

		<input type="checkbox"/> To reduce travelling expenses <input type="checkbox"/> Other
Q2.5	If other, please elaborate:	
Q2.6	Is the collaboration technology toolset currently fully implemented?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q2.7	Was the chosen collaboration technology toolset formally assessed and scoped to meet your enterprises requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q2.8	Was a readiness and/or maturity assessment performed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q2.9	Can you please describe the technology assessment technique used?	
Q2.10	Who currently maintains your collaboration toolset? <i>(select only one option)</i>	<input type="checkbox"/> Internally maintained <input type="checkbox"/> Externally maintained <input type="checkbox"/> Maintained both internally and externally

Section 3 – Collaboration toolset usage information:

Overview:

The following questionnaire section will present a number of questions pertaining to the enterprise's enterprise collaboration technology toolset usage. The objective is to identify which collaboration technology tools are used and the extent to which they are currently been used within the enterprise.

<p>Q3.1</p>	<p><i>Rank base on importance. (1 representing the highest importance.)</i></p> <p>What is your collaboration technology toolset primarily used for?</p>	<input type="checkbox"/> Business process automation <input type="checkbox"/> Content distribution <input type="checkbox"/> Document management <input type="checkbox"/> Enterprise collaboration <input type="checkbox"/> Enterprise communication <input type="checkbox"/> Publications and marketing campaigns <input type="checkbox"/> Searching for content <input type="checkbox"/> Social networking <input type="checkbox"/> Training <input type="checkbox"/> Other
<p>Q3.2</p>	<p>If other, please elaborate:</p>	
<p>Q3.3</p>	<p>How would you describe your enterprises collaboration maturity in terms of collaboration technology toolset usage?</p>	<input type="checkbox"/> Initial – only using out-of-the-box functionality. <input type="checkbox"/> Managed – enterprise users make use of the collaboration toolset to distribute content rather than distribution via email and shared file systems. <input type="checkbox"/> Defined – enterprise users actively participate in discussion threads, wikis, blogs and document repositories. <input type="checkbox"/> Optimized – enterprise collaboration is practiced throughout the enterprise.
<p>Q3.4</p>	<p>Is your collaboration technology toolset the primary source for content sharing such as document sets, video and audio files?</p>	<input type="checkbox"/> We only use our collaboration toolset for content sharing. <input type="checkbox"/> We use a combination of toolsets and file sharing repositories
<p>Q3.5</p>	<p>Can you please describe which other content sharing toolsets have been employed by the enterprise?</p>	
<p>Q3.6</p>	<p><i>Rank based on importance. (1 representing the highest</i></p>	<input type="checkbox"/> Alerts and RSS notifications

	<i>importance.)</i> Which collaboration technology toolset tools have been most useful to your enterprise in stimulating collaboration?	<input type="checkbox"/> Audio and video repositories <input type="checkbox"/> Blogs <input type="checkbox"/> Discussion forums <input type="checkbox"/> Document repositories <input type="checkbox"/> Social networking <input type="checkbox"/> Wiki pages <input type="checkbox"/> Other
Q3.7	If other, please elaborate:	
Q3.7	How many of your enterprise end-users actively collaborate and share ideas using your collaboration technology toolset, such as discussion forums, wiki pages and blogs?	<input type="checkbox"/> None of our end-users 0% <input type="checkbox"/> Less than 10% <input type="checkbox"/> Between 10% and 20% <input type="checkbox"/> Between 20% and 30% <input type="checkbox"/> Between 30% and 40% <input type="checkbox"/> Between 40% and 50% <input type="checkbox"/> Between 50% and 60% <input type="checkbox"/> Between 60% and 70% <input type="checkbox"/> Between 70% and 80% <input type="checkbox"/> Between 80% and 90% <input type="checkbox"/> Between 90% and 100%
Q3.8	<i>(Select one or more applicable answers)</i> Do you actively use your collaboration toolset to share content with your customers, suppliers or partners?	<input type="checkbox"/> Share with customers <input type="checkbox"/> Share with suppliers <input type="checkbox"/> Share with partners <input type="checkbox"/> We do not collaborate externally
Q3.9	How would you describe your enterprises end-users' ability towards sharing content?	<input type="checkbox"/> Initial – We still make use of folder structures to share content. <input type="checkbox"/> Managed – We make use of metadata to improve search ability of content. <input type="checkbox"/> Defined – Sensitive content is first reviewed and approved prior to being accessible to all users. <input type="checkbox"/> Optimized – Content is personalized to the user's needs and shared across multiple business functions without duplication
Q3.10	How would you describe your enterprises users' ability to search for content using your collaboration toolset?	<input type="checkbox"/> Initial – Only use out-of-the box functionality. <input type="checkbox"/> Managed – Searching scopes and filters have been installed to enhance the search experience. <input type="checkbox"/> Defined – Search results are analysed. Best bets and metadata properties are leveraged to aid in the search experience. <input type="checkbox"/> Optimized – Content types and custom properties are leveraged in advanced searches. Results are customized to specific needs.

Q3.11	Has your enterprise built various views and perspectives into your enterprise content?	<input type="checkbox"/> Initial – Only use out-of-the box functionality. <input type="checkbox"/> Managed –Views have been aggregated through customization. <input type="checkbox"/> Defined –. Views allow for drill-down and filtering. <input type="checkbox"/> Optimized – Analytics and trending are employed.
Q3.12	Do you allow enterprise end-users the freedom to create, customize and delete content as and when required?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Limited to a number of end-users.
Q3.13	Is security to content centrally controlled or distributed to business units, departments and/or teams?	<input type="checkbox"/> Centrally controlled <input type="checkbox"/> Distributed to business units <input type="checkbox"/> Distributed to teams and/or departments <input type="checkbox"/> We do not apply any security to content
Q3.14	Do you allow enterprise end-users to setup profiles in order to stimulate social networking within the enterprise?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Limited to a number of end-users.
Q3.15	How many end-users within your enterprise make use of profiles (personal social networking sites) to share content and information with other enterprise users?	<input type="checkbox"/> None of our end-users 0% <input type="checkbox"/> Less than 10% <input type="checkbox"/> Between 10% and 20% <input type="checkbox"/> Between 20% and 30% <input type="checkbox"/> Between 30% and 40% <input type="checkbox"/> Between 40% and 50% <input type="checkbox"/> Between 50% and 60% <input type="checkbox"/> Between 60% and 70% <input type="checkbox"/> Between 70% and 80% <input type="checkbox"/> Between 80% and 90% <input type="checkbox"/> Between 90% and 100%
Q3.16	Have your enterprise end-users established community networks and shared interests using their profiles, such as My Sites?	<input type="checkbox"/> Initial – Our enterprise users have little experience in this regard. <input type="checkbox"/> Managed – Partially used by enterprise users. <input type="checkbox"/> Defined – Used by a variety of business units, departments and teams, but not enterprise wide. <input type="checkbox"/> Optimized – Use enterprise wide.
Q3.17	Are your enterprise end-users actively using TAGGING and RSS Feeds to keep up to date with other user’s collaboration activities within your enterprise?	<input type="checkbox"/> Initial – Our enterprise users have little experience in this regard. <input type="checkbox"/> Managed – Partially used by enterprise users. <input type="checkbox"/> Defined – Used by a variety of business units, departments and teams, but not enterprise wide. <input type="checkbox"/> Optimized – Use enterprise wide.

Section 4 – Collaboration toolset application and integration usage:

Overview:

The following questionnaire section will present a number of questions pertaining to the enterprise’s collaboration technology toolset integration into other enterprise information systems. The objective is to identify the extent to which enterprise information system and enterprise collaboration technology toolset integration is fostered within the enterprise.

<p>Q4.1</p>	<p>Do you mash-up other business information systems within your collaboration technology toolset? For example presenting SAP Business Intelligence reports?</p>	<p><input type="checkbox"/> Initial – Our enterprise users have little experience in this regard.</p> <p><input type="checkbox"/> Managed – Partially used by enterprise users.</p> <p><input type="checkbox"/> Defined – Used by a variety of business units, departments and teams, but not enterprise wide.</p> <p><input type="checkbox"/> Optimized – Use enterprise wide.</p>
<p>Q4.2</p>	<p>How would you describe your collaboration technology toolset integration with other information systems?</p>	<p><input type="checkbox"/> Initial – we have no integration with other information systems.</p> <p><input type="checkbox"/> Managed – We have one integration interface with an information system.</p> <p><input type="checkbox"/> Defined – We have multiple integration interfaces with a variety of information systems.</p> <p><input type="checkbox"/> Optimized – We have external data integrations into supplier/customer and partner information systems.</p>
<p>Q4.3</p>	<p>Do you use your collaboration technology toolset to automate business processes via workflows?</p>	<p><input type="checkbox"/> Initial – only using out-of-the-box functionality.</p> <p><input type="checkbox"/> Managed – We have a few business processes automated.</p> <p><input type="checkbox"/> Defined – A number of our major business processes have been automated via our collaboration toolset workflow functionality.</p> <p><input type="checkbox"/> Optimized – A number of our major business processes have been automated via our collaboration toolset workflow functionality. Our workflows incorporate external users.</p>
<p>Q4.4</p>	<p>Do your enterprise users co-edit content such as spread sheets, custom list databases and word processing documents?</p>	<p><input type="checkbox"/> Initial – Our enterprise users have little experience in this regard.</p> <p><input type="checkbox"/> Managed – Partially used by enterprise users.</p> <p><input type="checkbox"/> Defined – Used by a variety of business units, departments and teams, but not enterprise wide.</p> <p><input type="checkbox"/> Optimized – Use enterprise wide.</p>

Section 5 – Collaboration toolset, support and training:

Overview:

The following questionnaire section will present a number of questions pertaining to the enterprise's collaboration technology toolset training and support structure. The objective is to identify how enterprise collaboration technology toolset end-users are trained and supported.

Q5.1	Do you have a formal collaboration technology toolset training program for new and inexperienced enterprise users?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q5.2	<i>(Select one or more applicable answers)</i> How frequently do you conduct training?	<input type="checkbox"/> Never <input type="checkbox"/> On an ad hoc basis <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/> Quarterly <input type="checkbox"/> Annually
Q5.3	<i>(Select one or more applicable answers)</i> How do you present your training material?	<input type="checkbox"/> We do not conduct any training <input type="checkbox"/> Online documentation <input type="checkbox"/> Online simulations <input type="checkbox"/> Video and audio tutorials <input type="checkbox"/> Workshops and training sessions
Q5.4	Do you have a content administrator/officer which governs which content may or may not be shared?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q5.5	Do you have a content administrator/officer per division/department/team/enterprise?	<input type="checkbox"/> Per team and/or department <input type="checkbox"/> Per division and/or business unit <input type="checkbox"/> We do not have a content administrator/officer
Q5.6	Do you have a formal support structure in place for your collaboration technology toolset?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Support is treated on an ad hoc basis
Q5.7	Is your support structure SLA driven?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Q5.8	Do you have a formal collaboration technology toolset enhancement/customization framework?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q5.9	Are all collaboration technology change requests reviewed and approved prior to deploying the new changes into your production environment?	<input type="checkbox"/> Initial – ad hoc changes are made. <input type="checkbox"/> Managed – all changes are reviewed prior to deployment, but not tested in a quality assurance environment. <input type="checkbox"/> Defined – all changes are reviewed prior to deployment, and tested in a quality assurance environment. <input type="checkbox"/> Optimized – all changes are reviewed prior to deployment, and tested in a quality assurance environment following an ITIL or similar compliance process.

Section 6 – Collaboration toolset, adoption and participation:

Overview:

The following questionnaire section will present a number of questions pertaining to the enterprise’s collaboration technology toolset adoption challenges and strategies. The objective is to identify the enterprise’s collaboration technology toolset challenges as well as approaches towards promoting and sustaining end-user adoption.

Q6.1	How do you encourage enterprise user participation?	<input type="checkbox"/> Top-down approach <input type="checkbox"/> Bottom-up approach <input type="checkbox"/> Hybrid approach <input type="checkbox"/> No approach selected
Q6.2	<p><i>Rank based on importance. (1 representing the highest importance.)</i></p> <p>What are your greatest challenges towards enterprise user participation?</p>	<input type="checkbox"/> Lack of management support. <input type="checkbox"/> Lack of enterprise end-user training and general education of the collaboration toolset functionality. <input type="checkbox"/> Stringent governance framework. <input type="checkbox"/> Time constraints. <input type="checkbox"/> Enterprise end-user behaviour challenges <input type="checkbox"/> Culture challenges <input type="checkbox"/> Our enterprise is silo oriented, making collaboration initiatives difficult. <input type="checkbox"/> Security concerns and intellectual capacity protection. <input type="checkbox"/> Our enterprise end-users are resistant to change
Q6.3	How would you describe your enterprise end-user’s technological challenge(s) towards adopting and participating in enterprise collaboration?	<input type="checkbox"/> Our enterprise users don’t experience any challenges. <input type="checkbox"/> Our enterprises users find it difficult to search for content. <input type="checkbox"/> Our enterprise users find it difficult to share content. <input type="checkbox"/> Our enterprise users find it difficult to utilize the collaboration toolset technologies. <input type="checkbox"/> Other

Q6.4	If other, please elaborate:	
Q6.4	How would you describe your enterprise user's behavioral challenge(s) towards adopting and participating in enterprise collaboration?	<input type="checkbox"/> Our enterprise users don't experience any challenges. <input type="checkbox"/> Our enterprise users have formed repetitive routines and have become comfortable using existing toolsets other than collaboration toolsets, making them resistant to change. <input type="checkbox"/> Our enterprise users have little technology interest in collaboration toolsets. <input type="checkbox"/> Other
Q6.5	If other, please elaborate:	
Q6.6	<i>(Select one or more applicable answers)</i> How would you describe your enterprise's culture?	<input type="checkbox"/> Our enterprise cultures encourage trust and respect. <input type="checkbox"/> Within our enterprise culture, there is a general belief that people within the enterprise want to work together to solve problems. <input type="checkbox"/> Our enterprise culture encourages open communication and collaboration between enterprise users, suppliers, partners or customers. <input type="checkbox"/> Other
Q6.7	If other, please elaborate:	

<p>Q6.8</p>	<p><i>(Select one or more applicable answers)</i></p> <p>How would you describe your enterprise's top and middle management leadership style?</p>	<p><input type="checkbox"/> Our management teams are supportive coaches rather than micro-managers.</p> <p><input type="checkbox"/> Our management teams micro-manage enterprise employees.</p> <p><input type="checkbox"/> Our enterprise culture encourages open communication and collaboration between enterprise users, suppliers, partners or customers.</p> <p><input type="checkbox"/> Our management teams encourage our enterprise users to take risks and make decisions.</p> <p><input type="checkbox"/> Our management teams discourage enterprise users taking risks.</p> <p><input type="checkbox"/> We have a formal decision making process.</p> <p><input type="checkbox"/> Management and their respective teams operate in isolation with outer teams, departments or business units.</p> <p><input type="checkbox"/> Enterprise users are held accountable for the decisions they make.</p> <p><input type="checkbox"/> Other</p>
<p>Q6.9</p>	<p>If other, please elaborate:</p>	
<p>Q6.10</p>	<p>Is your enterprise currently conducting a collaboration drive towards adopting Enterprise 2.0 collaboration technologies?</p>	<p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Planned for the near future.</p>
<p>Q6.11</p>	<p><i>Rank based on importance. (1 representing the highest importance.)</i></p> <p>What are the core critical success factors for your enterprise towards enterprise collaboration?</p>	<p><input type="checkbox"/> Improving business communication both internally and externally.</p> <p><input type="checkbox"/> Improve cooperation between enterprise users and external parties.</p> <p><input type="checkbox"/> To stimulate a culture of enterprise collaboration.</p> <p><input type="checkbox"/> To establish connections and community networks between enterprise users and external parties.</p> <p><input type="checkbox"/> Other</p>

Q6.12	If other, please elaborate:	
Q6.13	Do you incentivize user participation?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q6.14	<i>(Select one or more applicable answers)</i> What incentive mechanisms do you employ to encourage user participation?	<input type="checkbox"/> Monetary <input type="checkbox"/> Prices <input type="checkbox"/> Goal oriented <input type="checkbox"/> Participation is KPI driven <input type="checkbox"/> Other
Q6.15	If other, please elaborate:	
Q6.16	Do you have a formal collaboration toolset committee?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Q6.17	<i>(Select one or more applicable answers)</i> What are the roles of your collaboration toolset committee?	<input type="checkbox"/> We do not have a collaboration toolset committee <input type="checkbox"/> Enhancement and customization requests. <input type="checkbox"/> Adoption strategy formulation. <input type="checkbox"/> Technology strategy formulation. <input type="checkbox"/> Other
Q6.18	If other, please elaborate:	

Thank you for your participation

Appendix F: Semi-structured interview

Overview:

This study focuses on exploring the challenges that South African enterprises face when adopting and promoting Enterprise 2.0 collaboration technologies. It will also seek to identify and assess the critical success factors for creating a collaborative culture within an enterprise environment. The interview will take approximately 45 minutes and consists of the following sections:

- **Section 1 – Enterprise and respondent information**
- **Section 2 – Structured interview questions**
- **Section 3 – Open ended interview questions**

The questions within this interview have been formulated to address the following five research questions:

1. What are the challenges to using Enterprise 2.0 collaboration technologies within an enterprise environment? (**Section 2 and 3**)
2. What are the critical success factors, for adopting and promoting Enterprise 2.0 collaboration technologies? (**Section 2 and 3**)
3. Which of the various Enterprise 2.0 collaboration technology tools have the potential to encourage collaboration within an enterprise? (**Section 2 and 3**)
4. What are the generic guiding principles for adopting and promoting Enterprise 2.0 collaboration technologies? (**Section 2 and 3**)

Ethical considerations:

The following interview conforms to UNISA's research ethics policy (2007). The interview upholds the following ethical considerations:

- Respondents identified will be protected. Any information pertaining to the respondent's identity will be kept confidential and will not be released with the research results.
- Each enterprise's identity will be protected. Any information pertaining to the enterprises identity will be kept confidential and will not be released with the research result, unless written consent is obtained from the selected enterprise.
- Prior to interviewing or administering questionnaires to respondents, the objectives, risks and nature of the research will be explained.
- Respondent's participation will be voluntary, and they will not be obligated to answer all questions.
- All research data collected will be stored and secured for a period of five (5) years. Thereafter all paper-based and electronic documentation will be destroyed.

Recording of data collected:

The following interview form will be completed by pen. Thereafter the interview document will be scanned into electronic format. All electronic data will be encrypted and password-protected. Data collected will remain confidential, but it can only be disposed of, after five years to comply with the universities rules. After five years all electronic data will be destroyed and paper-based documentation shredded.

In addition the interview may be recorded in order to assist in administrating the interview and analysing the research data.

Section 1 – Enterprise and respondent information:

Enterprise name:	
Interviewer(s):	
Interviewee(s):	
Interview type:	
Date:	
Duration of the Interview:	

Section 2 – Structured Interview questions:

1. What collaboration technology toolset do you use?

2. What were the critical success factors in selecting the chosen collaboration toolset?

3. What were or are the business drivers for selecting the chosen collaboration toolset?

4. Do you have a formal governance framework aligned towards the selected collaboration toolset?

5. How is governance ownership maintained within your enterprise?

6. Are roles and responsibility towards the usage and support of your selected collaboration toolset well defined?

7. What challenges do or did your enterprise users experience on a day-to-day basis in using your chosen collaboration toolset?

8. What challenges do or did you experience in encouraging user participation and adoption of your collaboration toolset?

9. What were or are the critical success factors within your enterprise in adopting or promoting the use of Enterprise collaboration?

10. Which Enterprise 2.0 collaboration tools (e.g. Blogs, Wikis, Discussion forums, document libraries, etc.) has stimulated collaboration most within your enterprise?

11. Has the collaboration toolset been adopted enterprise wise?

12. Has your enterprise adopted a top-down, bottom-up or hybrid approach towards enterprise collaboration?

13. Do or did you adopt a strategic approach towards implementing your collaboration technology toolset, such as assessing business maturity, business readiness assessment, gap analysis, etc.?

14. What are or were the successes of your selected approach?

15. What are or where the shortcomings of your selected approach?

16. Does your collaboration toolset incorporate a social networking element?

17. If so, do your enterprise users actively use the social networking element?

18. What collaboration successes has your enterprise experienced by using a social networking element?

19. What collaboration shortfall has your enterprise experienced by using a social networking element?

20. Do you have a formal steering committee that drives user adoption?

21. If so, what role(s) does the collaboration committee for fill (e.g. strategic direction, user participation, enhancements and customizations, etc.)?

22. Do you reward enterprise user participation?

23. How do you reward enterprise user participation, for example monetary rewards, and prizes?

24. Do you have a formal collaboration toolset communication plan and how frequently is it executed?

25. Can you describe your collaboration toolset training plan and how is it executed?

26. Do you have a formal change management process in relation to your selected collaboration toolset?

27. Can you describe your collaboration toolset support team structure?

28. Do you have a formal information architecture process?

29. How would you define your enterprise culture towards enterprise collaboration?

30. Do you incorporate multimedia (video, audio, photo's, etc.) to promote user adoption?

31. Do you only use "out-of-the-box" functionality from your selected enterprise collaboration toolset, or have you customized and developed as well?

32. Do you allow for two-way communication (voting polls, discussion forums, etc.)?

33. Have you conducted any Return on Investment (ROI) calculations towards your selected enterprise collaboration toolset?

34. Do you only use “out-of-the-box” searching functionality or have you enhanced your enterprise collaboration toolset searching capability by incorporating content types, metadata, etc.?

35. Do you incorporate any technology mash-ups (Integration with other Information Systems, e.g. SAP)?

